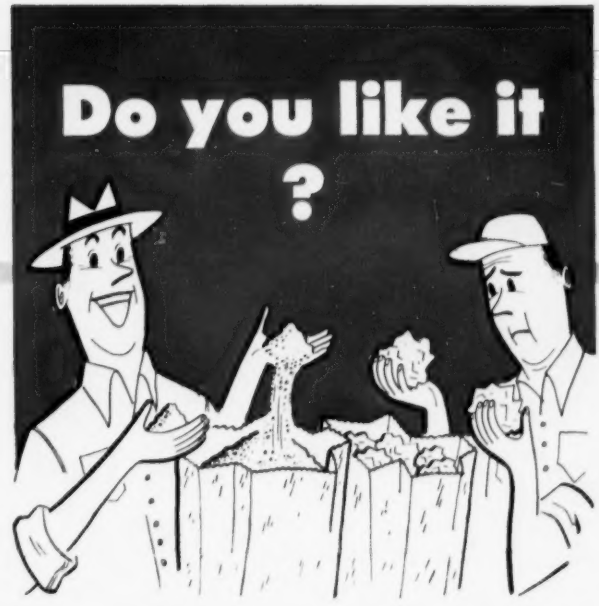
SEPTEMBER, 1956

Commercial Fertilizer

and PLANT FOOD INDUSTRY

How's Your Fertilizer Condition?



Do you still have problems in preventing bag set with some of your fertilizer grades? ARCADIAN® URANA® Nitrogen Solutions can help you get better condition at no extra cost.

Many fertilizer producers are using URANA Nitrogen Solutions to help prevent this caking or lumping. URANA improves condition both for storage and distribution of mixed fertilizers. The ammonium chloride salts crystallize as cubes instead of in the shape of needles or ferns. These cubes do not bind or cake the granules together. You produce well-cured fertilizer that maintains better condition. Furthermore, URANA Solution supplies another nitrogen source—urea or water soluble organic nitrogen.

You can now get URANA 15 (15% urea), URANA 12 (12% urea), URANA 10 (10% urea) and other URANA Solutions at the *same* price for nitrogen as ARCADIAN NITRANA® and U-A-S* Solutions. NITRANA and U-A-S Nitrogen Solutions and N-dure* Urea-Formaldehyde Solution also provide important conditioning advantages. For detailed information, call a Nitrogen Division technical service representative. His skilled help is free to customers.

Arcadian®

NITROGEN DIVISION Allied Chemical & Dye Corporation

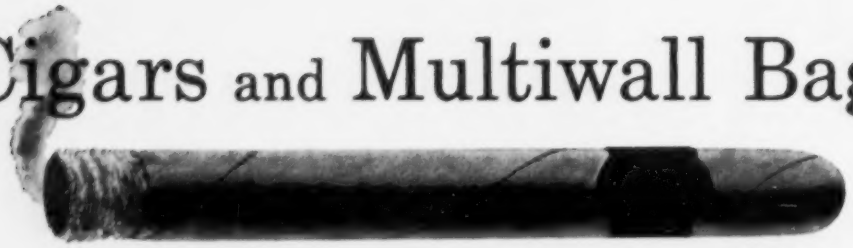
New York 6, N. Y. • Ironton, Ohio • Omaha 7, Neb. • Columbia 1, S. C.
Kalamazoo, Mich. • Columbia, Mo. • Atlanta 3, Ga. • Indianapolis 20, Ind.
Hopewell, Va. • St. Paul 4, Minn. • San Francisco 4, Cal. • Los Angeles 5, Cal.

NITROGEN DIVISION ALLIED CHEMICAL

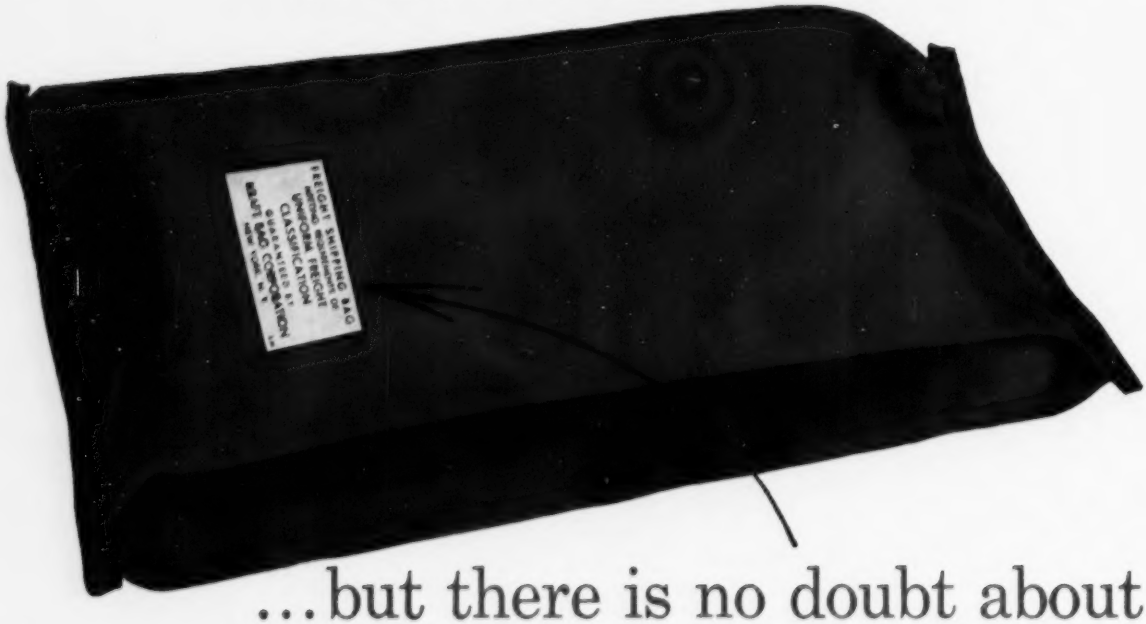
Nitrogen Solutions: NITRANA® • URANA® • U-A-S* • N-DURE*

Other Nitrogen Products: Anhydrous Ammonia • Urea Products • A-N-L® • Sulphate of Ammonia

Cigars and Multiwall Bags



Kraft Bag Corporation, as a manufacturer of multiwall bags, is in the same position as the cigar manufacturer who complained that everything to be said about his 25c cigars had already been said about 5-centers!



...but there is no doubt about the quality of the multiwall bags that bear the Kraft Bag Corporation stamp!

Our completely integrated plants and modern facilities producing every type of heavy-duty valve or open mouth bag, are second to none!

As an exponent of true specialization, there isn't a single known or desirable time-and-labor-saving development that we haven't already either considered, initiated, adopted or built into multiwall bags we are called upon to make for America's industries, while continuing our search for still better ways to package our customers' products.

If your product can be packaged in a multiwall bag – you can depend on us to make the bag to fit your product.

Investigate **The KRAFTPACKER®** *Open Mouth Bag Filling Machine for free-flowing material ... highest accuracy and production ... reduces packaging costs at an unbelievable rate.*

KRAFT BAG CORPORATION

Gilman Paper Company Subsidiary

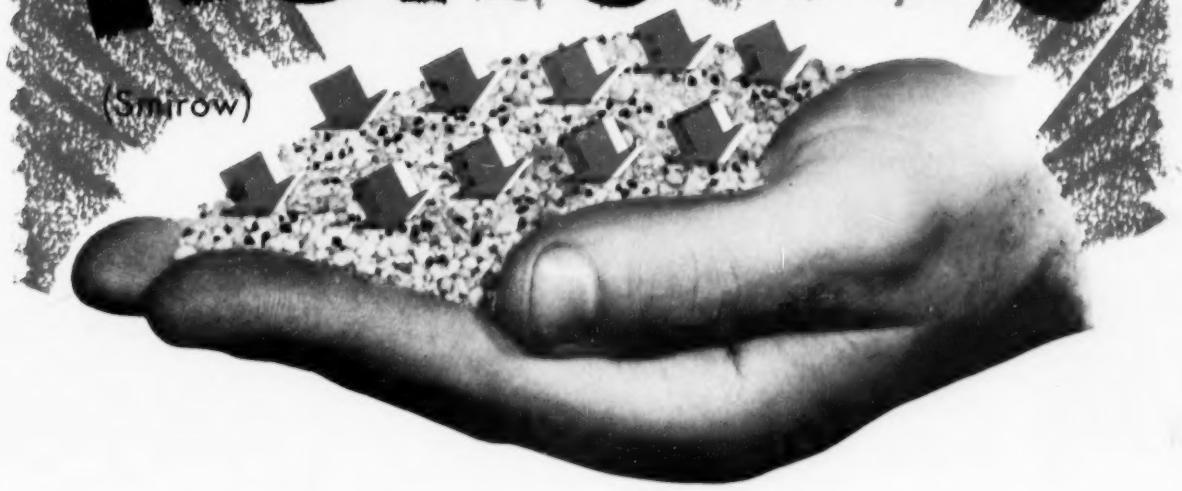
630 Fifth Avenue, New York 20, N. Y.
Daily News Bldg., Chicago 6, Ill.

Plants at St. Marys, Georgia and Gilman, Vermont

For QUALITY that SHOWS

Nutronite

(Smirow)



..and quality you can *talk* about!

YOU CAN BAG NUTRONITE FOR LAWNS

Bag Nutronite to fill out your line of lawn and garden fertilizers. Golf courses use large quantities, too. For information on this profitable market for an all organic fertilizer write Smith-Rowland Co., Norfolk, Va.

Nutronite (formerly Smirow) adds to the selling power of your mixed fertilizers. Plainly visible Nutronite assures your customers of added growth and profits . . . brings back satisfied customers year after year.

Nutronite is the 100 percent natural organic addition to mixed fertilizers. Its nitrogen is 90% water insoluble and 90% available—for that all-season effect on plant growth.

Nutrition + Nitrogen = Nutronite

Let us figure the cost of Nutronite delivered to your plant.

SMITH NUTRONITE ROWLAND

SMITH-ROWLAND CO.

P. O. Box 1219, Norfolk 1, Va.

A DIVISION OF SMITH-DOUGLASS COMPANY, INCORPORATED

Published Monthly by
WALTER W. BROWN PUBLISHING CO., INC.
75 Third St., N. W., Atlanta 8, Ga.
Phone TRinity 4-4160

President
ERNEST H. ABERNETHY

Editor
BRUCE MORAN

Managing Editor
CLAY W. PENICK, JR.

Business Manager
V. T. CRENSHAW

Chicago Representative
ELON A. ABERNETHY
1200 N. Ashland Ave.—Room 544
Phone CApitol 7-4111

West Coast Representative
M. A. CALDWELL
2267 W. 24th St., Los Angeles, Cal.
Phone REPUBLIC 1-3050

Address all inquiries, advertising and editorial material, and correspondence to Atlanta Publishing Offices, sending direct to COMMERCIAL FERTILIZER and PLANT FOOD INDUSTRY, 75 Third St. N. W., Atlanta 8, Georgia.

Vol. 93 No. 3 *Established 1910* September, 1956

Commercial Fertilizer
and PLANT FOOD INDUSTRY

Subscription rates: United States, $3.00 per year; 5 years, $12.00. Foreign $5.00 per year.

Contents

Commenting Freely, by *Bruce Moran* 4
Just Around the Corner, by *Vernon Mount* 14
Time to Reduce Oxides? 21
The Service a Control Official Renders, by *P. H. DeHart* 22
Control Official Convention Program 23
Southwest Grade Meeting Report 24
Nichols Tackles a Tough One 31
How to Double Tonnage, by *P. J. Bergeaux* 32
Around the Map 34
Nearly 11 Million Acres in Reserve Program 38
Personals 40
Tractor Shovel Maintenance 48
Changes 51
SAFETY
The Key Word at Joplin 53
Safety Section Program
Lion, Cyanamid, DuPont & Safety
Leaf-Rust Resistance Bred in Wheat 54
Random Notes & Quotes 56
Wilson Dam Demonstration 58
Industry Calendar 58
Tonnage Reports and Markets 60
Obituaries 62
Crop Chemicals 63
Classified Advertising 67
Index of Advertisers 68

COMMERCIAL FERTILIZER and PLANT FOOD INDUSTRY, entered as second class matter, October 12, 1910, at the post office at Atlanta, under the Act of March 3, 1879. Published monthly except semi-monthly in September, by Walter W. Brown Publishing Co., Inc., 75 Third St., N. W., Atlanta 8, Georgia.

Commenting Freely

by Bruce Moran

Now that the conventions are over, we can be sure of one thing at least: Both parties are heartily in favor of the farmer!

Of course, sound economics cannot always ride on the same bandwagon with political expediency. That would be too much to expect. But sound, or unsound, the farmer will be nurtured . . . and nurtured a lot better than the average farmer takes care of his soil.

Some day some wise statesman will figure out a way to help those on the farm who really help themselves . . . and let the poor managers work under the aegis of good managers. This may sound a bit too close to socialism for comfort. On the other hand there is the Biblical injunction about being thy brother's keeper.

After all these days of listening to oratory on the TV and radio, perhaps I may be forgiven for being a bit on the confused side! But one thing I am sure of—the US will continue to forge ahead, despite the politician, because back of us all is sound business, horse sense.

Standard of the Industry

GRANULATION OF MIXED FERTILIZERS

"KEYSTONE OF THE INDUSTRY"

WEATHERLY PROCESS

DESIGNED BY

THE D. M. WEATHERLY CO.
ATLANTA, GA.

Unknown a year ago last June, from a standing start the Weatherly Controlled Granulation Process has grown in acceptance until today it is turning out more quality tonnage, plant for plant, than any other method . . . the standard by which the industry now judges granulation. BECAUSE:

It produces granular goods that sell better due to close sizing—through 6 mesh, retained on 16 mesh screen. It makes a high volume of high quality, uniform analysis goods from the lowest cost materials. It is built of quality, heavy-duty components.

Let us tell you about it . . . show you Weatherly units in action . . . let you talk to operators with a season's experience.

Weatherly Controlled Granulation *20-60 tons per hour*

The D. M. WEATHERLY COMPANY

Industrial Engineers and Builders

80 Eleventh St. N. E., Atlanta, Georgia Phone: TRinity 5-7986

Now—for direct application . . .

highest quality. . .
granulated triple super

Just one trip across the field with this dustless, easy-to-handle, granulated 0-45-0 will make a repeat customer out of a trial user. Cash in now on fall sales.

Builds customer satisfaction and repeat sales

You'll like the compliments you'll get after your customers have tried your new 0-45-0 from International for the first time.

Look at typical comments from users of this high-quality triple:

"It sure goes on easy." (You bet it does! It's granulated for easy going through any fertilizing rig.)

"Pleasure to use." (Yes . . . and just one downwind trip across the field will prove it to anyone . . . will build more repeat sales than a dozen sales talks.)

"Saves time and money." (Now your customers can avoid breaking up lumps in the bag or stopping in the middle of a field to kick a clogged-up rig. Easy to handle . . . just fill the fertilizer hopper and push off. Easy to put on.)

What's more, agronomists can tell you the high availability of this superior product delivers results that build farmer satisfaction and repeat sales. The reason: special processing and manufacturing care produces a triple that resists reversion in the soil . . . supplies growing plants the phosphorus they need when they need it.

Call or write International today for samples and complete details.

free-flowing...top-performing that sells itself on sight

*bagged under your own label... shipped direct to your dealers**

Here's a new triple super you'll be proud to add to your own line of fertilizers . . . the new, granulated 0-45-0 from International Minerals and Chemical.

This superior triple can be shipped in bulk, or International will be happy to have it bagged in adequate quantities under your own label . . . ship direct to your own dealers, too, if you like.

Here's what this can mean to you:

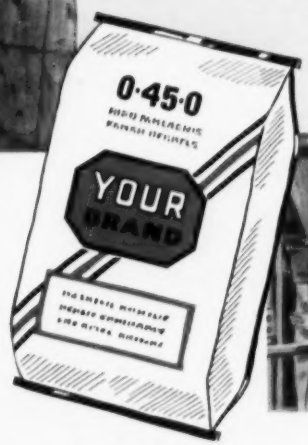
- A top-quality triple super that carries your own private label and complements the rest of your line.
- A modern, easy-to-use, top-performing triple super that will bring you increased customer satisfaction and plenty of repeat sales.

The unbeatable convenience of distributing this high-quality product under your own brand name direct to your dealers without touching a single bag.

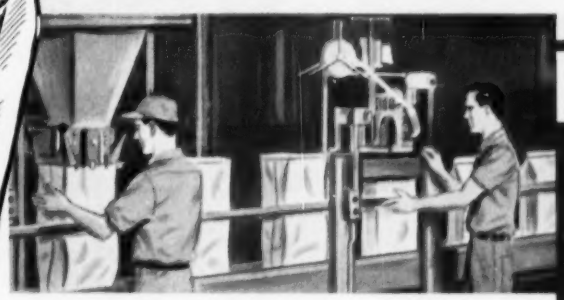
What's more, you'll find that dealing with International is a pleasure. You'll appreciate the friendly cooperation from International's transportation department . . . the fast service . . . and the reliability of supply.

See your International triple-super sales representative soon for complete details on minimum order requirements, price and delivery information. He'll be glad to show you samples. And one look at this new 0-45-0 will show you why you can't get a better deal than this new triple super now available for direct application sales.

**subject to minimum order requirements*



Profit now from this superior 0-45-0. Bagged under your own brand name.



Superior texture of this new triple super, put up in your own bags, stores without caking. It's granulated for easy going through any fertilizer attachment.

MINERALS International CHEMICALS

PHOSPHATE CHEMICALS DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Offices: 20 North Wacker Drive, Chicago 6

The Man from St. Regis

offers a *pocketful* of savings with Pasted Valve Fertilizer Bags!

The St. Regis Pasted Valve Bag has a revolutionary moisture-tight, squared corner construction that saves you space . . . time . . . money!

Here's proof from Superintendent W. N. Brinson of Kingsbury & Co., Inc., Indianapolis, Ind. . . .

SAVINGS ONE — Saves Space! "We have gained storage space by changing to pasted valve bags . . . they are much easier to stack, making for better handling and storage in the warehouse."

SAVINGS TWO — Saves Time! "Fork lift trucks that handled only 15 bags per tier now handle 20 efficiently . . . dealers can identify grade analyses of warehouse stacks much quicker."

SAVINGS THREE — Saves Money! "The insert sleeve, combined with the tighter, better-shaped package, greatly reduces siftage. We get much less siftage than with sewn bags." Says Vice President Edward Kingsbury . . ."We've reduced package size and are happy with the storage savings. But *we like the lower* cost for bags, too!"

This is an un-retouched photo of new Pasted Valve Fertilizer Bags (at right) stacked next to conventional sewn-type bags in the Kingsbury plant. Holding the same amount of fertilizer, the Pasted Valve Bags take up considerably less storage space than ordinary sewn bags.

Behind the Man from St. Regis stand experts in every field of packaging, ready to serve you.

ST. REGIS PAPER COMPANY

Send in this coupon today. Find out how you can save space . . . time . . . and money in your plant.

Multiwall Packaging Division
St. Regis Paper Company, Dept. CF-956
150 East 42nd Street
New York 17, N. Y.

Please send me information about the new Pasted Valve Fertilizer Bag.

Name_____ **Title**_____

Firm_____

Address_____

City_____ **State**_____

SALESMEN... to help boost YOUR profits!

LION Advertisements Sell LION Nitrogen, *and* Your Mixed Goods, Too!

Continuous Lion advertising appears in leading farm publications, month-after-month, to pre-sell the Lion brand to farmers—and to sell the value of *your mixed fertilizers as well!*

Current advertisements are appearing in Farm and Ranch-Southern Agriculturist, Progressive Farmer, The Farmer, Nebraska Farmer, Kansas Farmer, Prairie Farmer, Wallace's Farmer & Iowa Homestead, Wisconsin Agriculturist and Farmer, Missouri Ruralist and Missouri Farmer. All of these advertisements are in color.

Each Lion advertisement promotes the economic benefits of properly using fertilizers, including Lion Ammonium Nitrate, to help increase the farmer's profits. Each advertisement sells *hard* on the importance of soil tests in the intelligent use of all commercial fertilizers. Lion, a leader in nitrogen production, leads the way to good fertilization practices . . . to better profits for you!

LION'S QUALITY LINE OF NITROGEN FERTILIZER MATERIALS

LION ANHYDROUS AMMONIA—82.2% nitrogen. Quality guaranteed.
LION AQUA AMMONIA—Ammonia content above 30%—other grades to suit your requirements.
LION AMMONIUM NITRATE FERTILIZER—Improved spherical pellets. Guaranteed 33.5% nitrogen.
LION NITROGEN FERTILIZER SOLUTIONS—Various types to suit your particular manufacturing needs.
LION SULPHATE OF AMMONIA—White, uniform, free-flowing crystals. Guaranteed 21% nitrogen.

LION OIL COMPANY

A DIVISION OF MONSANTO CHEMICAL COMPANY

EL DORADO, ARKANSAS

DISTRICT SALES OFFICES: Lion Oil Building, El Dorado, Ark. • Insurance Exchange Building, Des Moines, Ia. National Bank of Commerce Building, New Orleans, La. • 1401 Building, Atlanta, Ga.

It's acid-resistant

it's strong

it's low-priced

it's the new Bemis

Acid-Resistant Thread

The new Bemis Acid-Resistant Thread meets a longfelt need for thread for the manufacture and closing of multiwall paper and laminated bags for fertilizers and chemicals with substantial acid content.

You can pack with confidence by using Bemis Bags made with the new Bemis Acid-Resistant Thread . . . and by using this thread in your bag-closing operation. It is made in both 4-ply and 5-ply and handles just like the famous Bemis Special Thread® in a sewing machine. No sewing machine adjustments are necessary.

Get the *complete* story . . . *advantages, prices* . . . from your Bemis Man.

Bemis

General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

DU PONT URAMON® Ammonia Liquors

are non-corrosive . . . easy on your equipment

This mild steel tank car has carried UAL for over 23 years!

UAL is easy and economical to use. It can be used in ordinary steel equipment.

The excellent conditioning effect of UAL gives mixed fertilizers better "feel". . . can often speed curing. And UAL minimizes dusting, segregation and setting of conventional fertilizer mixtures.

In granulation, too, UAL works well! Gives hard, uniform granules that are best for storage and application. If you're thinking of granulation in your future plans, ask us about UAL.

You'll like the on-time delivery of UAL. There are four formulations available. For technical assistance and information on the formulation best suited to your use, write Du Pont.

URAMON®
AMMONIA LIQUORS

E. I. DU PONT DE NEMOURS & CO. (INC.)
Polychemicals Department, Wilmington 98, Delaware

1616 Walnut St. Philadelphia 3, Pa.
7250 N. Cicero Ave. Chicago 30, Ill.

Du Pont Company of Canada Limited
85 Eglinton Avenue East, Toronto 12, Ontario

DU PONT

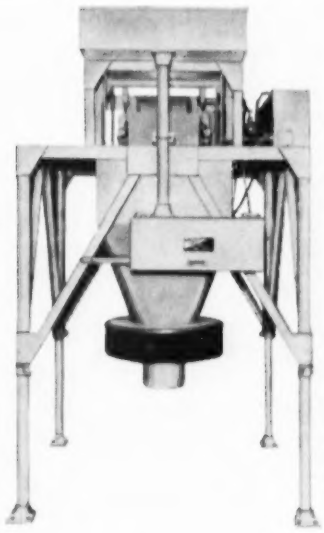
Better Things for Better Living . . . *through Chemistry*

When your trade demands 50's

keep your packaging costs down

with the UNION I&C BAGGER

MODEL UB 101 (Dial Scale)
for finer weight tolerances and visible weight check



MODEL UB 100-A (Double Beam Scale)
for accurate, high speed weighing of granular materials

If you are faced with the necessity of packaging in 50-lb. units, the Union I & C Bagger can help you eliminate the increased packaging expenses you would otherwise face.

The Union Bagger easily handles up to twenty 50-lb. bags a minute. You can convert from 100-lb. containers and still maintain your net tonnage per hour.

Over 300 Union Baggers have been installed by fertilizer manufacturers in the past two years alone. The savings you make with this automatic and practically fool-proof high speed equipment not only improve your competitive position, but your savings alone actually pay the full cost of the Bagger in a remarkably short period of time.

We will be glad to demonstrate with actual figures based on recent fertilizer installations.

Ends "rush season" production worries, brings about greatest savings, fertilizer executives report

SOLVES RUSH SEASON SHIPPING PROBLEMS

"Your UB-101 machine has proved to be more than adequate in every phase of performance."

P. L. Etheredge, Secretary-Treasurer Etheredge Guano Company, Inc., Augusta, Ga.

ELIMINATES ALL OVERTIME

"We were able to eliminate all overtime during the past two seasons, which I am convinced more than compensated us for the small cost of the baggers.

"The speed and accuracy of these units made the many thousands of tons we handled during the rush period a pleasure.

"One of the most significant features is the lack of maintenance. The amount we have expended would not exceed $25 for the past two years."

C. P. Belding, Supt., F. S. Royster Guano Company, Athens, Ga.

PRODUCTION UP 50%—LABOR SAVINGS 33%

"The Union I & C Bagger has enabled us to increase production to 50 to 60 tons per hour, compared with 35 to 40 tons in the past, and we are able to do it with two men instead of three. The Union Bagger is as fast and efficient a bagger as I've ever encountered. Its performance has been little short of sensational."

C. L. Durham, Plant Superintendent Dixie Guano Co., Laurinburg, N. C.

UNION I&C BAGGER

Automatic Weighing and Filling Machine for Open Mouth Bags

Manufactured by INGLETT & CORLEY, INC., AUGUSTA, GA.

Exclusive Sales Agents:

PACKAGE ENGINEERING DEPARTMENT
UNION BAG-CAMP PAPER Corporation
233 Broadway, New York 7, N. Y.

union camp

NEW! SEND FOR UNION'S AUTHORITATIVE AND PRACTICAL "FERTILIZER PACKAGING WORK KIT"

Package Engineering Department
Union Bag-Camp Paper Corporation
233 Broadway, New York 7, N. Y.

Please send immediately your new "Fertilizer Packaging Work Kit" which includes a new calculator for figuring our bagging cost-per-ton. I understand there is no charge or obligation.

Name ..... Title .....

Company .....

Address .....

City ..... Zone .... State .....

JUST AROUND THE CORNER *by Vernon Mount*

Magna Carta was the historic beginning of a trend which still continues, a leftward trend we call it. This is a euphemism for the bowing by the powers that be to the pressure of the people for control of the government.

The Founding Fathers did not visualize that kind of government for the United States. Actually they set up the Electoral College as a buffer between the people and the final result. They were aristocrats, mostly – and their thinking was that of today's economic powers.

Roosevelt was condemned because he virtually followed the socialist platform in his first term as President. And today, we have middle-of-the-roaders, so called, who are just as far left, for the most part as FDR was.

We keep moving!

Yours faithfully

Vernon Mount

ASHCRAFT-WILKINSON CO.

Fertilizer Materials — *Oil Seed Meals*

Home Office: ATLANTA, GA.
Cable Address
ASHCRAFT

Offices: NORFOLK, VA., CHARLESTON, S. C., TAMPA, FLA.
JACKSON, MISS., COLUMBUS, OHIO, MONTGOMERY, ALA.

Exclusive Distributors: DUVAL SULPHUR & POTASH COMPANY
and ESCAMBIA BAY CHEMICAL CORPORATION

AMMONIATES — FEED STUFFS — SULPHUR — POTASH
INDUSTRIAL AND AGRICULTURAL
CHEMICALS

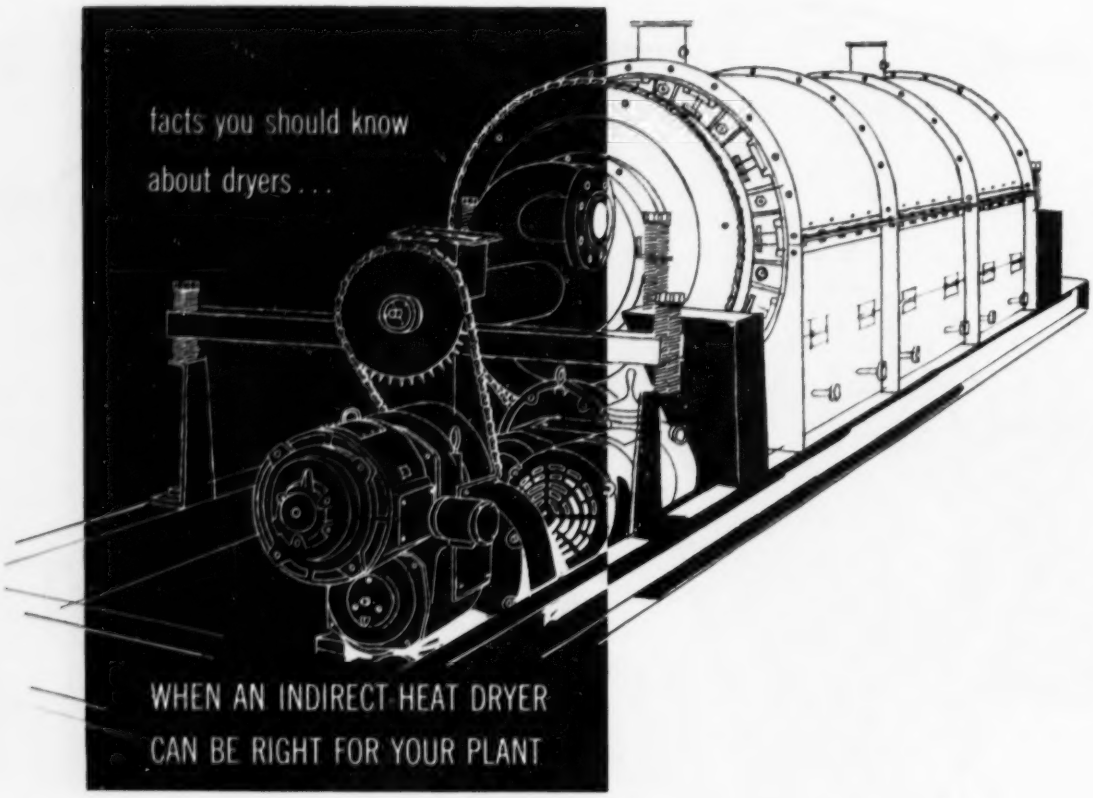
What you want When you want it!

FROM Albemarle's vast timberlands, pulp mills and bleaching plants to the final production of Raymond Multiwalls, strict technical control assures the complete protection of every "bagable" product . . . Papers of all descriptions including a wide range of specialties adapted to individual needs . . . Any number of plies . . . Clean, radiant printing . . . And of special importance, quick deliveries always.

Raymond
MULTIWALLS

RAYMOND BAG CORPORATION

Albemarle Division of PAPER MFG. COMPANY
Middletown, Ohio • Richmond, Va.



For over 55 years, Louisville Dryers have been solving industry's drying problems and effecting marked economies. The records of this experience can often be applied to specific cases, possibly yours. For example . . .

Q. *My material is a filter cake, practically all minus 325 mesh, and must not contact furnace gases. It can be heated to 500° F. at least, without injury. What type of dryer would do the job best?*

A. You might consider using a direct-heat rotary dryer that utilizes clean, heated air as the drying medium—air heated by steam coils or a gas or oil fired heat exchanger. However, this introduces a considerable dust collection problem. Besides, from a standpoint of capacity, it is inefficient as well as from a heat-cost standpoint. This makes it unduly expensive. Therefore, a type of indirect-heat rotary dryer is indicated which would greatly reduce both the dust problem and the heat cost.

Q. *What is meant by an indirect-heat rotary dryer?*

A. One in which the material to be dried is warmed by contact with the heated metal surfaces, which in turn are heated by the medium used (usually furnace gases or steam). Those using furnace gases are called "indirect fire dryers". Atmospheric and vacuum drum dryers are examples of steam-heated indirect dryers, but the type in greatest use is the steam tube dryer. This is often referred to as the "Louisville Type" because of the thousands of Louisville Steam Tube Dryers built during the past 55 years.

Q. *How does an indirect-heat dryer minimize the dust problem?*

A. In an indirect-heat dryer, only enough air is admitted to carry off the evaporated moisture. Thus, the air has nothing to do with the heating of the material. Generally, this low air velocity results in insignificant dust loss.

Q. *How does this differ from the operation of a direct-heat dryer?*

A. In direct-heat dryers, the hot air furnishes the heat for drying besides removing the evaporated moisture. The amount needed to supply the necessary heat results in a sufficiently high velocity through the dryer to carry out an excessive amount of fine material particles.

Q. *It seems I need an indirect-heat dryer. How can I get competent advice and more information regarding my particular requirements?*

A. The Louisville Dryer engineering staff will be glad to analyze your requirements, arrange for necessary pilot plant tests, and submit an unbiased recommendation accompanied by estimated costs. You incur no obligation by using this service.

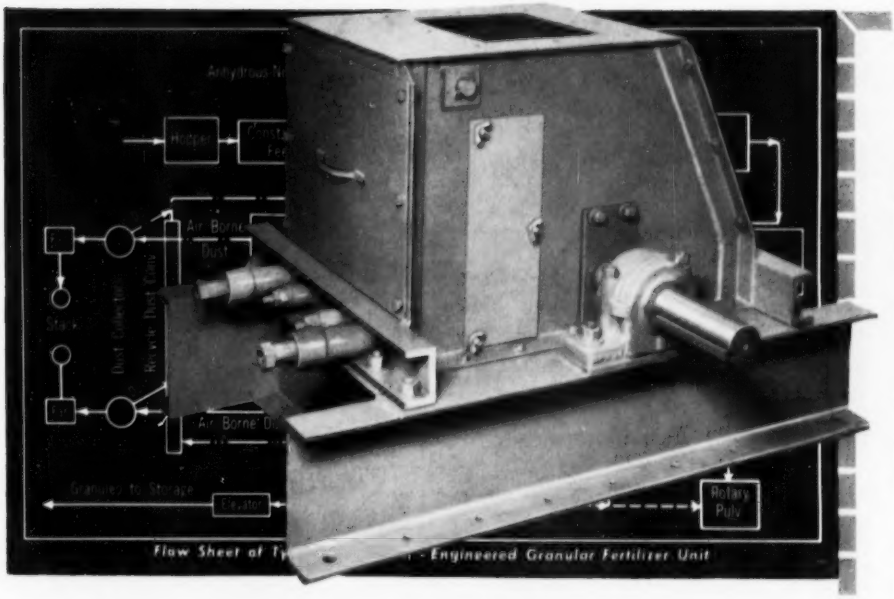
GENERAL AMERICAN
TRADE MARK

LOUISVILLE DRYING MACHINERY UNIT

GENERAL AMERICAN TRANSPORTATION CORPORATION

Dryer General Sales Office: 139 So. Fourth Street, Louisville 2, Kentucky
Eastern Sales Office: 380 Madison Avenue, New York 17, New York
In Canada: Canadian Locomotive Company, Ltd., Kingston, Ontario, Canada
General Offices: 135 S. La Salle Street, Chicago 90, Illinois

This Rotary Pulverizer Belongs In Your Fertilizer Unit, Too!



IT'S STURTEVANT-ENGINEERED TO GRIND UP TO 35 TONS OF TAILINGS PER HOUR

Mixing plant operators agree! They'll tell you that a Sturtevant Rotary Pulverizer beats anything else for keeping a granular or powdered fertilizer unit speeding along at full capacity. It's far better than Hammer Mills with hammers that stick . . . Cage Mills that skip small pellets . . . Knives that only slice and shear. No overload stoppages nor clogged grates. So, daily accumulation of over-sized lumps is no longer a problem. And, to top it off, original Sturtevant "Open-Door" accessibility makes cleaning quick and easy.

Sturtevant Engineering can also help you in other ways. For more than 75 years, leaders in the fertilizer industry have depended on us for assistance in designing their units and in keeping them up-to-date. Since we custom-build mixers, batching units, granulators, hopper and conveying systems to fit agreed-upon specifications, you can be sure of getting a complete unit or individual components that fit your requirements like a glove. Why be satisfied with anything less?

Investigate now! Filling out the convenient coupon at the right is the first step toward better fertilizer at lower cost. Why not mail it today?

STURTEVANT

Dry Processing Equipment

The "OPEN-DOOR" to *lower* operating costs over *more* years

CRUSHERS • GRINDERS • MICRON-GRINDERS • SEPARATORS
BLENDERS • GRANULATORS • CONVEYORS • ELEVATORS

I am interested in a new unit ☐ conversion ☐

Desired capacity is _____

Name _____ Title _____

Firm _____

Street _____

City _____ Zone _____ State _____

STURTEVANT MILL COMPANY, 111 Clayton Street, Boston 22, Mass.

Please send me bulletin on Rotary Pulverizers ☐
Also bulletins on Sturtevant machines for:

☐ CRUSHING ☐ GRINDING ☐ GRANULATORS
☐ MICRON-GRINDING ☐ SEPARATING ☐ MIXING
☐ SCREENING ☐ FEEDING
☐ MECHANICAL DEN & EXCAVATORS ☐ ELEVATING & CONVEYING

5 PHILLIPS

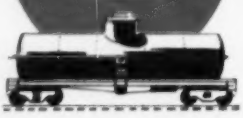
Fertilizer Materials for High Analysis Mixtures

1

AMMONIUM SULFATE

New Premium Quality Phillips *66* Ammonium Sulfate contains 21% nitrogen, 23.8% sulfur. It is *dry*-cured to remove excess moisture, prevent caking. Uniform dust-free crystals flow freely, mix easily. Ideal for all analyses of mixed goods and for direct application. Available in bags or bulk.

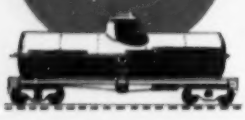
2



ANHYDROUS AMMONIA

Phillips *66* Agricultural Ammonia contains 82% nitrogen. It's a convenient, economical source of nitrogen for formulation of mixed goods. Tank car shipments are assured to Phillips contract customers by Phillips huge production facilities in the Texas Panhandle and at Adams Terminal near Houston.

3



NITROGEN SOLUTIONS

Get more N per dollar! There are three Phillips *66* Nitrogen Solutions for use in preparation of high-analysis fertilizers and the ammoniation of superphosphate. These solutions help to keep manufacturing costs low; help rapid, thorough curing.

4

AMMONIUM NITRATE

Phillips *66* Prilled Ammonium Nitrate contains 33.5% nitrogen. The small, coated prills resist caking, handle easily. Depend on Phillips *66* Prilled Ammonium Nitrate for uniform free-flowing properties and top-notch crop response as a direct application material. It's an ideal companion high nitrogen fertilizer for your quality mixed goods.

5

TRIPLE SUPERPHOSPHATE

Phillips *66* Triple Superphosphate contains 46% available phosphoric acid. Ideal for use in formulation of high-analysis fertilizers.

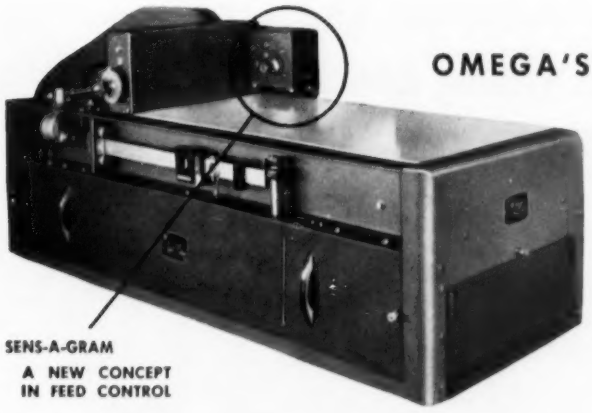
Phillips 66

PHILLIPS CHEMICAL COMPANY

A Subsidiary of Phillips Petroleum Company, Bartlesville, Oklahoma

Offices in:

ATLANTA, GA.—1428 West Peachtree Street
AMARILLO, TEX.—First Nat'l Bank Bldg.
BARTLESVILLE, OKLA.—Adams Bldg.
CHICAGO, ILL.—7 South Dearborn St.
DENVER, COLO.—1375 Kearney Ave.
DES MOINES, IOWA—606 Hubbell Bldg.
HOUSTON, TEX.—1020 E. Holcombe Blvd.
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.
KANSAS CITY, MO.—500 West 39th St.
MINNEAPOLIS, MINN.—212 Sixth St. South
NEW YORK, N. Y.—80 Broadway
OMAHA, NEB.—WOW Building
PASADENA, CALIF.—330 Security Bldg.
RALEIGH, N. C.—804 St. Mary's St.
SALT LAKE CITY, UTAH—68 South Main St.
SPOKANE, WASH.—521 E. Sprague
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Utica Square
WICHITA, KAN.—501 KFH Building



SENS-A-GRAM
A NEW CONCEPT
IN FEED CONTROL

OMEGA'S

Hi-Weigh

- **ACCURATE**
- **HIGH SPEED**
- **WEIGHING FEEDER**

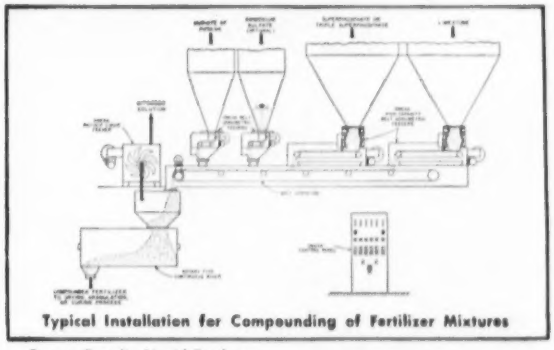
for Batch or Continuous Formulating

The Model 37-20 *Hi-Weigh* is Omega's answer to industry's need for a medium to very high capacity dry materials feeder. It combines accuracy with ruggedness . . . and together with other B-I-F equipment, makes automation in this field a reality. This unit offers improved formulation accuracy, greater operating economies, and increased production. Request Bulletin 35-N16 for full details.

CHECK THESE FEATURES!

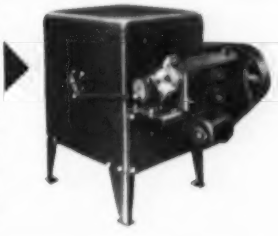
- **HIGH CAPACITY FEED RATE** . . . over 3000 lbs./min.
- **HIGH ACCURACY** . . . ± 1% by weight over full range.
- **WIDEST AVAILABLE RANGE** . . . Omega variable speed drive *and* extra large weight-sensing section provide almost limitless range of rates.
- **NO BELT SLIPPAGE/TRAINING** . . . eliminated by positive chain drive attached to heavy-duty belt.
- **RAPID RATE SETTING** . . . easily meets any formula changes.
- **SENS-A-GRAM CONTROLLER** . . . mechanically senses and corrects slightest weight deviation.
- **EASY RATE CHECKING** . . . built-in sampling gate is standard equipment.
- **NON-FLOOD ROTOR** . . . operates in proportion to feed rate.
- **HOPPER AGITATION** . . . varies with feed rate for maximum efficiency.
- **MINIMUM MAINTENANCE** . . . facilitated by superior design.

The Omega Model 50-8 Belt Gravimetric Feeder offers unusually high production (up to 3 cu. ft. per min. of material) . . . from minimum (only 6 sq. ft.) floor space. Rugged designs and safety features assure continuous service. Available in wide variety of hopper capacities and feeder sizes. This model offers high-efficiency operation . . . minimum downtime and maintenance . . . automatic control . . . and continuous or batch compounding through multi-unit installations.



Typical Installation for Compounding of Fertilizer Mixtures

Omega Rotodip Liquid Feeder — in stainless steel construction — is the ideal means of feeding unrefined phosphoric acid in producing superphosphate. The Rotodip provides high repeat accuracy (within 1%) — wide feed range adjustability (100 to 1) — plus the important advantage of being very easy to clean due to the simple design of its flat-sided components. Maximum feed rate 1800 GPH. Write for Bulletin.



Share in the wealth of design, manufacturing, and installation experience that B-I-F Industries, Inc. has to offer. Omega will be glad to send complete data and recommendations on your particular compounding, blending, or formulating problem . . . whether it involves a single feeder . . . or an entire system complete with high and low rate feeders, panels, and integrating controls. We are always glad to be of service . . . without any obligation on your part. Make your process more profitable . . . act today!

OMEGA MACHINE COMPANY
538 Harris Avenue Providence 1, Rhode Island

B-I-F

B-I-F INDUSTRIES

PROVIDENCE, RHODE ISLAND

B-I-F METERS FEEDERS CONTROLS

OMEGA MACHINE CO. • PROPORTIONEERS, INC. • BUILDERS-PROVIDENCE, INC. • BUILDERS IRON FOUNDRY

OLD soils need NEW life!

revitalize them with – THE IRON CHELATE

PERMA GREEN IRON 135

for BIGGER, BETTER and FASTER-GROWING CROPS

UNTREATED

TREATED

ORANGES

Four ounces to one pound PERMA GREEN IRON 135 per tree produces dark green leaves and more, larger and better colored oranges.

When iron is lacking and plant leaves turn yellow, PERMA GREEN IRON 135 makes them dark green in two weeks' time.

PERMA GREEN IRON 135 is an organic chelate that moves upward with the sap to rejuvenate the entire plant.

PERMA GREEN IRON 135 *now produces –*

– healthier and more productive blueberry bushes
– larger and more beautiful roses
– deeper-green leaves on azaleas and rhododendrons
– more attractive ornamental trees and shrubs.
– more nutritious vegetables
– more and juicier oranges and grapefruit
– more and larger nuts

Write for detailed information on PERMA GREEN IRON 135 for plants and reprint of scientific article on CHELATES.

Developed by RESEARCH • Proved by PERFORMANCE

for quality products, remember –

Refined PRODUCTS CORPORATION

Manufacturing Chemists • 632 Schuyler Ave. • Lyndhurst, N. J.

SUNFLOWERS

Grown in nutrient solution. Small yellow plant at left treated with iron sulphate.

Large dark green plant at right treated with PERMA GREEN IRON 135.

GARDENIAS
(Greenhouse)

Iron is very important for gardenias. Treat each bush with 1/16 to 1/8 level tablespoonful PERMA GREEN IRON 135 to insure dark green leaves and large pure white flowers.

HAS THE TIME COME TO REDUCE THE OXIDES?

Agronomic research workers have for a number of years been interested in changing plant nutrient guarantees in fertilizers from the oxide to the elemental basis for phosphorus and potassium. Queries to the industry for the most part have been cast aside with a retort that—like the metric system of measures—it was desirable but our present practice is too well established to make a change.

While many feel that it is a tremendous step, those who have studied the problem feel it can be accomplished with a minimum of confusion "provided everybody is anxious to do so."

It now appears, however, that an organized effort is under way to instigate the change. And progressively more sentiment seems to favor such action. The ball really began to roll last year when the Soil Science Society of America endorsed the proposal in a mail ballot prior to its August convention at Davis, Calif., meeting jointly with the American Society of Agronomy. The SSSA group reported a whopping 95% of the respondents favoring the change.

As a committee from the Society had been considering the problem for some time prior to this action, the Association of American Fertilizer Control Officials had set up a committee of its own to work with SSSA and other groups interested in ironing out the difficulties of such a transition.

Urged on by the pressure of various organizations anxious for the revision in guarantees, the Control Officials' committee on Special Guarantees met recently in Washington to formulate some specific recommendations. In their deliberations, they learned that the proposed change had been approved by the Experiment Station Policy Committee for the West and North Central Regions; endorsement had also been obtained from Soil Science Society of America, American Society of Agronomy, and from the four national soil research committees. SSSA and other groups interested.

AAFCO's committee decided further to seek approval from the other two regions of Experiment Station Policy Committees, and to secure the approval of the National Association of Secretaries, Directors and/or Commissioners of Agriculture, and to obtain an OK from Extension Service Directors also.

They formulated a program to present basic information on ratios, grades and labeling — both present and proposed—to fertilizer control officials throughout the U.S., and to distribute tables showing typical grades in current use as they would appear if the elemental expression practice is adopted, along with proposed bag labeling examples.

The following data summarizes Information on Labeling, Present and Proposed, as compiled by the committee:

1. Present label (1956)
Doe's 4-16-16
Guaranteed Analysis

Total Nitrogen	4.0%
Available Phosphoric Acid (P_2O_5)	16.0%
Soluble Potash (K_2O)	16.0%

2. A Suggestion from Industry

Total Nitrogen	4.0%
Available Phosphoric Acid (P_2O_5)	16.0%
Equivalent to available phosphorus (P)	7.0%
Soluble potash (K_2O)	16.0%
Equivalent to soluble potassium (K)	13.3%

3. Present Uniform Bill (1960?)
Doe's 4-8-16
Guaranteed Analysis

Total Nitrogen	4.0%
Available Phosphoric Acid (P_2O_5)	18.3%
Equivalent to available phosphorus (P)	8.0%
Soluble Potash (K_2O)	19.1%
Equivalent to soluble potassium (K)	16.0%

4. Alternate Proposal (for 1960)
Doe's 4-8-16
(replaces 4-16-16)
Guaranteed Analysis

Total Nitrogen	4.0%
Available Phosphorus (P)	8.0%
Equal to 18.3% phosphoric acid (P_2O_5)	
Soluble Potassium (K)	16.0%
Equal to 19.1% potash (K_2O)	

In the committee's opinion, proposal 4 was judged as most acceptable from several standpoints; in addition, it would permit the fertilizer manufacturer to merely eliminate the two lines beginning "equal to . . ." when all states had finally changed to the elemental basis.

In reviewing the proposals, the committee felt it evident that it will be necessary to "even out" certain ratios, with a resultant increase in the amount of plant food contained. In addition, their report indicated this would probably cause a reduction in the number of ratios, and consequently in the number of grades. And this would cause the various states to think more in terms of uniformity, they surmised,

Table 1. Proposed ratios and minimum grades using elemental expression of phosphorus and potassium instead of oxide

Present Guarantees		Proposed Elemental Guarantees		
Ratio	Min. Grade	Approx. Min. Grade Same as Present Ratio	Adjusted Min. Grade	Adjusted Ratio
(N-P_2O_5-K_2O)		(N-P-K)	(N-P-K)	
0-1-1	0-12-12	0-5.2-10.0	0-5-10	0-1-2
0-1-2	0-10-20	0-4.4-16.7	0-4-16	0-1-4
0-2-1	0-16- 8	0-7.0- 6.7	0-7- 7	0-1-1
1-1-1	8- 8- 8	8-3.5- 6.7	8-4- 8	2-1-2
1-2-2	5-10-10	5-4.4- 8.3	5-5-10	1-1-2
1-2-3	5-10-15	5-4.4-12.5	5-5-15	1-1-3
1-3-2	4-12- 8	4-5.2- 6.7	4-8- 8	1-2-2
1-4-4	3-12-12	3-5.2-10.0	3-6- 9	1-2-3

and encourage all toward expression of minor and secondary elements on an elemental basis, as outlined in the Uniform Fertilizer Bill.

In view of the fact that the change would result in fractional guarantees if present ratios are adhered to, the committee worked out a planned table of new ratios and minimum grades (Table 1).

As a guide to those wishing to work out other relationships, the committee included the following factors:

$P_2O_5 \times 0.4364 = P$
$P \times 2.2912 = P_2O_5$
$K_2O \times 0.8301 = K$
$K \times 1.2046 = K_2O$

and a table of equivalent percentages of the oxide to the elemental:

P_2O_5	P	K_2O	K
10	4.36	10	8.30
12	5.24	12	9.96
14	6.11	14	11.62
16	6.98	16	13.28
20	8.73	20	16.60
40	17.46	40	33.20
50	21.82	50	41.51

Its groundwork laid, the committee has placed in the hands of all AAFCO members a full copy of its report, and is awaiting action at the Association's annual meeting in Washington during October, where officials are slated to hear two talks on the topic as a part of their convention program.

Conditions seem to favor approval of the measure by the officials, and its path was smoothed when the Southern Control Officials (representing 16 states) added its endorsement at a summer meeting in Roanoke, Va.

THE CONTROL OFFICIAL AND HIS SERVICES TO AGRICULTURE

by P. H. DeHart,
Assistant Director
Virginia Polytechnic Institute
Agricultural Extension Service
(At Southern Control Meeting)

In the development of this topic, I believe we should have a common understanding of the major groups who are involved with the services of the control official, and the basic objective of all groups, including the control officials. The groups involved include the farmer, research and educational agencies, the feed and fertilizer industry, and probably others.

The objective of the farmer is to increase his income to buy and pay for a desirable standard of living for his family, give his children an opportunity for an education, and leave his farm in better condition than it was when he began operations.

We have had many proposals in the form of legislation that have attempted to help the farmer to reach this objective. Without discrediting any of these, the only way this objective can be reached by the individual farmer is through increased production per man hour of labor, and an over-all increase in the efficiency of operating his business. I might add that this applies to industries, to states, to nations, and to counties.

The basic objective of the control officials, research and educational agencies, and the feed and fertilizer industry is to help the farmer increase production per man hour of labor and to increase the over-all operating efficiency of his business so that he may reach his objective of a higher income and better living. In order to help farmers reach this objective, we must recognize that production alone will not do the job. It includes efficient production of high quality products. It includes an efficient marketing system that will deliver to the consumer a high quality product at a reasonable cost.

We all must be ever mindful of the fact that we are servants of the people. In the final analysis, the consumer of the product we sell calls the shots, regardless of whether that product is feed, fertilizer, information, or regulations. If the quality of the product is not up to standard, the consumer soon recognizes it and those distributing such products must adjust or adjourn. A regulation that is out of date will eventually be changed by the people. However, as public agencies we should constantly evaluate regulations to make certain that adjustments are made before progress is delayed. This is also applicable to education and research.

This would indicate to me that control officials, land-grant colleges and industries should continue to work together and develop a mutual understanding of the problems of each. I do not believe that either group can render maximum service to agriculture unless they do this. We may call this public relations. There are many definitions of public relations; but to me it simply means the ability to get along pleasantly with those with whom we live, and to whom we sell our products or services. Efficient, dependable, friendly, and honorable practices must be the foundation for this type of relationship.

With this background, let's take a look at how the land-grant colleges and industry try to help the farmer reach his objective. I think this will enable us to see more clearly the place of the control officials and their services to agriculture.

Let's start with research. The function of research is to find the truth and explore the unknown. Through this method, new feed mixtures are developed containing many ingredients that will increase the efficiency of production of meat, milk, and eggs. Research develops new fertilizers, new combinations of plant nutrients to meet specific crop needs grown on many different soils.

The changes in feed and fertilizer have been revolutionary during the past five to ten years, and my prediction is that the future results of research will be even more revolutionary. My references to research includes the research conducted by Federal and State Experiment Stations and that conducted by industry.

The part of the feed and fertilizer industries, in addition to research, is to manufacture, distribute, and sell the kind, analysis, and quality of feed and fertilizer determined by research to be of the greatest help in enabling the farmer to get efficient production. This is a responsible function; unless it is carried out in a dependable and honorable manner, the use of the results of research will be delayed. In many instances, a slight change in the formula may mean the difference between profit and loss for the farmer.

The educational agency's function is to make research information available to the people and encourage its use. Education is not complete until the person being taught acts. The farmer must be convinced that the new feed or fertilizer will be of benefit to him. Then, when he uses the product, it must perform as recommended. It is of the utmost importance that the exact analysis, including all of the special ingredients, be actually delivered. The educational agencies and the farmer must assume that this is true.

The above statements on the function of research, education, and industry clearly show the place of the control official and his opportunity for service. I have listed a few of the specific services of the control officials. They are:

(1) It is very difficult for me to visualize the present day feed and fertilizer manufacturing industry without it having had the benefit of the control officials services throughout the many states. These control officials have, by working together, developed "ground rules" for all manufacturers to follow, thus assuring equal competitive opportunities for all. This competitive situation has, of course, stimulated individual manufacturers to reduce cost of manufacturing and distribution. Thus, the livestock and poultry producer and the agricultural economy have both benefited through this improved manufacturing industry.

(2) The method or system of labeling for feed and fertilizer has been kept rather simple so that the farmer is better able to understand what he is purchasing. Considerable credit for this is due to the control officials. This system of labeling has helped the farmer to understand better what is in the bag. It has caused him to become better informed on the functions of the various ingredients. Thus, labeling is a distinct contribution to the educational program.

(3) In addition the control officials, by working together throughout the entire United States and Canada, have developed definitions and descriptions for feed ingredients to the point that uniformity exists throughout the nation. Thus, a manufacturer can buy feed ingredients from any part of the country. It would be difficult to imagine a large feed manufacturer trying to produce feeds for several areas and having the same ingredient called by two or three different names in different sections of the country. This also applies to the fertilizer industry.

(4) The control official through inspection, tests, and other methods has given the farmer some protection and given him some assurance that he is actually getting what he purchases. Not only has this protected the farmer but it has protected the honest feed and fertilizer manufacturer against the dishonest manufacturers. I am convinced that the great majority of the feed and fertilizer manufacturers are honest and give the consumer full measure. One reason this exists is that eventually the economic law as reflected by consumer preference will have a much greater force than any of our feed and fertilizer laws. However, if we did not have the inspection service, I am confident we would have more low quality feed and fertilizer on the market and the farmer would be the loser.

(5) It has been my observation in Virginia that the control officials have accomplished a great deal through a cooperative approach instead of the dictatorial approach.

PROGRAM

Association of American Fertilizer Control Officials
Shoreham Hotel, Washington, D. C.
October 19, 1956

8:30- Registration, West Ball Room

9:30 Reading of Minutes
Report of Secretary-Treasurer, B. D. Cloaninger
Announcements & Appointments of Committees
Roll Call by States
Presidential Address: Industries—Large & Small —Make America: Dr. M. P. Etheredge, State College, Mississippi.
Industry is Serving the Public Interest: Hugo Riemer, President, Nitrogen Division, Allied Chemical & Dye Corp., New York
Address: Dr. Russell Coleman, Exec. Vice-Pres., N.P.F.I.
"Reducing" the Oxides: W. F. Price, Swift & Company, Plant Food Div., Chicago, Ill.
Functions of the Land Grant Colleges: Dr. R. F. Poole, President, Clemson A&M College of S.C.

12:15 Dutch Luncheon $3.50
Terrace Banquet Room—Shoreham Hotel
Introduction of Speaker: Paul Truitt, Exec. Vice-Pres. N.P.F.I., Washington, D.C.
Address: Dr. Paul Sanders, Editor, Southern Planter, Richmond, Virginia.

2:30 Sampling Commercial Fertilizers (Solids, Solutions and Gases): Dr. F. W. Quackenbush, State Chemist, Lafayette, Ind.
Results of Survey (Agronomists & Horticulturists in U.S.) on changing from oxide to elemental basis for Phosphorus and Potassium: George Enfield, Ext. Agronomist, U.S.D.A., Washington, D.C.

3:30 Report of Investigators

Report of Investigators—General Terms: M. H. Snyder, Charleston, West Va.; Nitrogen (Liquid): M. B. Rowe, Richmond, Va.; Nitro. Products (Organic): M. P. Etheredge, State College, Miss.; Nitrogen Products (Inorganic): J. W. Kuzmeski, Amherst, Mass.; Phosphorus: J. F. Fudge, College Station, Texas; Potassium: F. W. Quackenbush, Lafayette, Ind.; Calcium, Magnesium, Manganese: J. B. Smith, Kingston, R.I.; Boron: R. C. Berry, Richmond, Va.; Zinc and Copper: H. J. Webb, Clemson, S.C.; Mixing and Segregation: M. B. Rowe, Richmond, Va.; Registration Forms: George Laramie, Concord, N.H.; Publications: G. H. Ridder, Olympia, Wash.; Specimen Labels: W. J. Huffman, Jackson, Miss.; Tonnage Reports: Crawford Winton, Oklahoma City, Okla.; Pesticides in Fertilizers: J. C. Jones, Richmond, Va.; Specialty Fertilizers, E. A. Epps, Jr., Baton Rouge, La.

Report of—States Relations Committee: H. J. Fisher, New Haven, Conn.; Uniform Fertilizer Bill: S. B. Randle, New Brunswick, N.J.; Committee on Analytical Tolerances: F. W. Quackenbush, Lafayette, Ind.; Uniform Lime Bill: Rodney C. Berry, Richmond, Va.; All other Agricultural Chemicals: J. F. Fudge, College Station, Texas; Special Comm. on Fertz Guarantees: A. B. Lemmon, Sacramento, Calif.; Executive Committee: J. J. Taylor, Tallahassee, Fla.

Report of Special Committees—Auditing: H. R. Allen, Chairman, J. A. Hennesy, Henry De Salvo; **Credentials:** M. B. Rowe, Chairman, H. S. Johnson, Jr., E. R. Tobey; **Resolutions:** E. D. Schall, Chairman, Floyd Roberts, D. M. Stalter; **Nominating:** J. B. Smith, Chairman, R. C. Berry, Parks A. Yeats.

Election of Officers

Presentation of Presidential Plaque to Dr. M. P. Etheredge.

Adjournment

In the case of fertilizers, and probably feed, the control officials have an advisory committee that helps them get better fertilizer laws to administer. This, I think, is a substantial contribution and should be aggressively pursued along all lines. I do not think that the control officials can render the greatest service by climbing in an "Ivory Tower" and overlooking the needed changes in the law to meet present needs. In this connection, it would be well for the land-grant colleges and the control officials to make certain that we are up to date with industry. The research program of industry is operating on a much expanded basis, and we do not want to be guilty of retarding the use of science because of our failure to keep up with industrial research.

(6) One contribution that the control officials are making is in their efforts to bring about more uniformity in state laws. I note from the 1955 issue of your official publication that you had at that time the tenth edition of a model fertilizer law. Probably you have eleven by now.

I am confident that the lack of uniformity in state laws or in the recommendations from the land-grant colleges is causing many problems in the feed and fertilizer industry as well as in educational work on the border of state lines. I know it is difficult for farmers and others to understand why an imaginary state line should make so much difference. This problem is becoming more acute with the modern methods of communication through radio and television that pay no attention to state lines. One other problem that you are faced with is to provide for a speedy adjustment in state laws to permit the use of new scientific discoveries without too much delay. An important discovery may be made in one state; but due to the failure of the land-grant college or the control officials to recognize it, progress is delayed. I commend you for what you are doing to solve this problem, and I am sure you have this high on your priority of services to be rendered. The land-grant colleges are aware of this situation, and I am confident they will work with you.

(7) In conclusion, the control officials are rendering a great service to agriculture in many ways. I also believe that your opportunity will be even greater in the future because of the rapid increase in the use of feed and fertilizer and the almost fantastic changes that are taking place in these industries. This will mean that control officials, the land-grant colleges, and industry must work together much closer in the future than we have in the past to make certain that we have a mutual understanding of old problems and the desire to solve them and the same open-minded attitude toward the ever increasing number of new problems. We must accept these problems as opportunities for service. If we do this, I am confident that we will have the satisfaction of helping thousands of farm people realize their objective of more income and better living through the use of more high quality feed and fertilizer.

SOUTHWEST FERTILIZER CONFERENCE AND GRADE MEETING

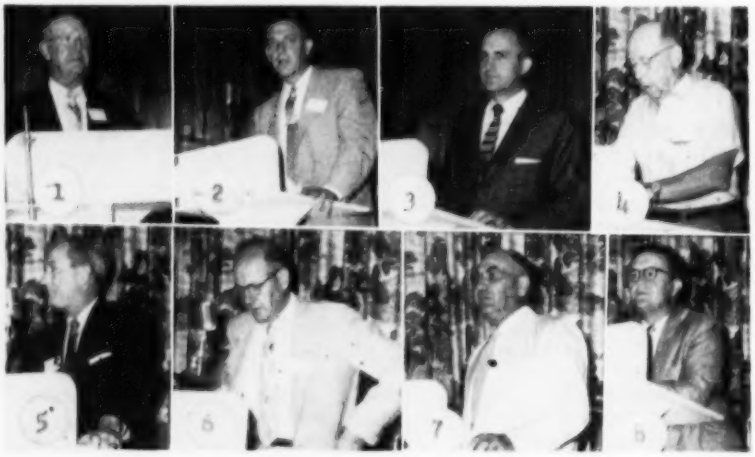
The Southwestern Fertilizer Conference and Grade Hearing held at the Buccaneer Hotel, Galveston, Texas, July 18, 19 and 20 broke all previous atendance records with 300 fertilizer manufacturers, college department heads, state fertilizer control officials, material suppliers and their wives and children. Approximately 125 of the 300 were ladies and children.

The meeting had several sessions on the serious side but there were ample opportunities for those interested in fishing, swimming, dancing, golf and bridge. The friendly atmosphere that was in evidence during the meeting was the best ever.

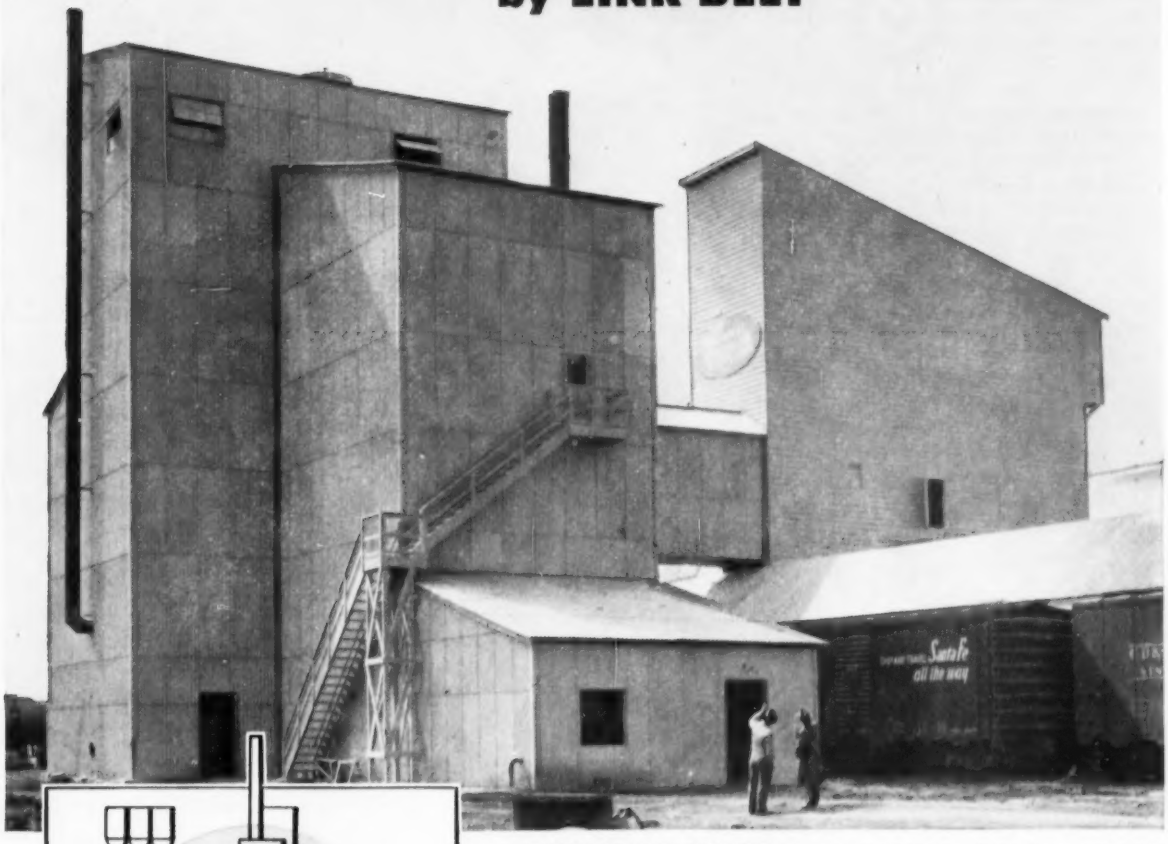
The meeting was launched Wednesday evening, July 18, with a social period in the main ballroom of the Buccaneer. The general meeting commenced Thursday, July 19, with Stanley Hackett, president, Dixie Fertilizer Company, Shreveport, Louisiana, presiding. The welcome address was given by J. C. Powledge, National Hotel Company, Galveston, Texas. The response was given by J. D. Dawson, Jr., Fidelity Chemical Company, Houston, Texas. The technical session was handled by Joe Sharp, manager of Technical Service, Spencer Chemical Company, Kansas City, Missouri, and Bill Tyler, Longhorn Construction Company, Sulphur Springs, Texas, who presented two different approaches on granulation. Joe Sharp presented the granulation process using the TVA type ammoniator and Bill Tyler pointed out the merits of a granulation plant using a pug mill. This is a very controversial subject which was of extreme interest to most of the fertilizer manufacturers.

Dr. Russell Coleman, executive vice-president, National Plant Food Institute, talked on various angles of the Soil Bank. It was mentioned that fertilizers, when used correctly, could be used to get our nation out of the present economic plight of having farm surpluses. Dr. Coleman pointed out how we could plant less and produce less yet make a good

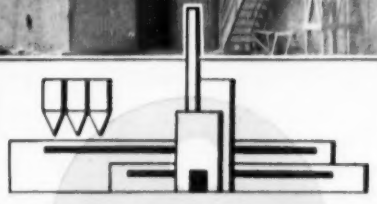
1. Chairman Stanley Hackett, Dixie Fertilizer Co., Shreveport, opens the meeting.
2. Dr. Arthur A. Smith, Vice-President First National Bank, Dallas, principal speaker.
3. Dr. Russell Coleman, NPFI, Washington.
4. M. K. Thornton, Texas A & M College, College Station, Tex.
5. Parks Yeats, Director of Feed & Fertilizer for Oklahoma, Oklahoma City.
6. Dr. Dale Hinkle, University of Arkansas, Fayetteville.
7. Dr. M. B. Sturgis, LSU, Baton Rouge, La.
8. Dr. J. B. Page, Texas A & M College, College Station, Texas.



3rd GRANULAR FERTILIZER PLANT
furnished for Federal Chemical by LINK-BELT



40 TONS OF MIXED FERTILIZER are produced hourly at Federal's new Danville (Ill.) plant. Process utilizes anhydrous ammonia and ammonium nitrate solutions.



LINK-BELT "turn-key" SERVICE unlocks new efficiencies in fertilizer production

Under this inclusive 5-point program, LINK-BELT will:

1. **PILOT THE PROCESS,** using our complete laboratory and test facilities.
2. **DESIGN THE SYSTEM** as an efficient, integrated operation conforming to your exact needs.
3. **FABRICATE THE EQUIPMENT.** Link-Belt makes a complete line—will also supply special requirements.
4. **ERECT THE PLANT,** providing crews and supervisory service.
5. **START THE OPERATION,** with field engineers ready to make final adjustments.

Supplies handling and processing equipment to put TVA continuous ammoniator system "on stream"

PROVED in two previous Federal Chemical Company plants, Link-Belt equipment was chosen for a third installation. And this same top performance and efficiency was achieved to produce top-grade fertilizer at low cost.

Link-Belt will work with your own constructors to design and equip a new plant—or modernize your present system. Or we can handle complete erection under a single *"turn-key"* contract.

Link-Belt offers a complete line of handling and processing equipment plus broad experience in the production of every type of fertilizer. Whether you produce dry-mix, superphosphate, ammonium phosphate, ammonium nitrate, ammonium sulphate, urea or granular — call your nearest Link-Belt office. Or write for Book 2459.

LINK-BELT

PLANTS AND EQUIPMENT FOR THE FERTILIZER INDUSTRY

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 14.329

profit through the efficient use of fertilizers.

Dr. Arthur Smith, vice-president, First National Bank, Dallas, Texas, gave a talk on the national farm problem. Dr. Smith said that we have increased our cultivatable land by 33⅓ per cent since 1910 and that tremendous quantities of fertilizers and insecticides have been used. He related that our farm educational system has been improved until we now have the best educated farmers in the world. It was further pointed out that our farms are highly mechanized and the land that used to produce hay to sustain mules and horses can now be used for other products. Also to be considered is the effect of rural electrification on the production program. On the consumption side of the farm problem, Dr. Smith pointed out several changes that have affected the situation. He mentioned that our eating habits have changed, that we tend to stay away from high energy foods. The scientists have discovered synthetic fibers. He said that our past farm policies have stimulated foreign production and that our tariff policies and foreign policies have practically eliminated foreign trade thus adding to our surpluses. Dr. Smith jokingly said that he had a solution to the farm problem called the "Smith Plan" and that it was very simple. Anyone that can qualify as a farmer would get a check from the government every month. The farmer could then grow anything he wanted to as long as it is sold on the free market. He laughed and said there were two answers or details that would have to be worked out by the government—who would qualify as a farmer and the amount of the check that would be paid to the farmer.

The Southwestern Annual Fertilizer Grade Hearing was held Friday, July 20. Dr. J. B. Page, Texas A & M, College Station, Texas, presided for Dr. J. F. Fudge who is presently ill.

1. Dr. H. E. Hampton, Dr. Duke Thornton, Dr. D. R. Patterson, Texas A & M, College Station, Tex., Dr. Niven Morgan, American Potash Institute, Shreveport, Dr. J. B. Page, Texas A & M, Ivan Gilliland, International Minerals & Chemical Corp., Ft. Worth, Floyd Prather, Central Texas Fertilizer Co., Inc., Comanche, Gerald Wakefield, Olin Mathieson Chemical Co., Little Rock.
2. Arkansas Plant Food Educational Society: Joe Sedberry, Monsanto Chemical Co., El Dorado, Dr. Dale Hinkle, University of Arkansas, Fayetteville, E. O. Baber, Chilean Nitrate Sales Corp., Little Rock, Bill Dunklin, Planters Fertilizer & Soybean Co., Pine Bluff, Lloyd Dhonau, Arkansas Plant Food Co., Little Rock, H. E. Brooks, International Minerals & Chemical Corp., Texarkana, Woody Miley, Arkansas Soils Specialist, Little Rock, E. W. Ledbetter, Dixie Fertilizer Co., Shreveport, Ivan Gilmore, El Dorado Fert. Co., El Dorado, Eal Day, Ark-Mo Plant Food Co., Corning, Lawson Dew, Planters Fert. & Soybean Co., Pine Bluff, Z. H. Calhoun, Sou. Cotton Oil Co., Little Rock.

1. Hostesses for Ladies luncheon: Mrs. James Dawson, Jr., Houston, Mrs. Bill Tyler, Sulphur Springs, Mrs. Stanley Hackett, Shreveport, Mrs. Don Miller, Houston, and Mrs. Jack Lindsey, Shreveport.
2. Mr. and Mrs. J. B. Snell, Minden Cotton Oil & Ice Co., Minden, La.
3. Mrs. C. M. Stultz, and Mrs. John Souter, Sulphur Springs, Texas, Mrs. E. W. Ledbetter, Shreveport, Mrs. Georgia Chandler and Mrs. Fay Shallengerger, Shreveport, Mrs. Jimmy Powledge, Galveston, and Mrs. B. L. Henderson, Houston.
4. Mrs. Arnold Neumann, Mr. Neumann and children, Red Star Fertilizer Co., Sulphur Springs, E. O. Baber, Chilean Nitrate Sales Corp., Little Rock.
5. Ann Lindsey, Shreveport, Griff Field, Hattiesburg, Mary Lindsey, Shreveport, Adrian and Florence Reedy, Franklinton. Ann & Mary Lindsey are the daughters of Mr. and Mrs. Jack Lindsey, Griff Field is the son of Mr. and Mrs. Marion Field, Adrian and Florence Reedy's parents are Mr. and Mrs. Frank Reedy.
6. Mr. and Mrs. Frank Reedy, Green & Reedy, Franklinton, Mr. & Mrs. Bill Tyler, Longhorn Construction Co., Sulphur Springs.
7. Arnold Neumann, Red Star Fertilizer Co., Sulphur Springs, Sam Clement, Monsanto Chemical Co., St. Louis, Ogden Swann, Tennessee Corp., Atlanta, Mrs. Jack Lindsey and Mrs. Stanley Hackett, Shreveport. (Mr. Clement was caught with two brooms at the broom dance.)
8. Mr. and Mrs. Joe Wright, Texas Farm Products Co., Nacogdoches.

Dr. M. B. Sturgis of Louisiana mentioned that the pattern of fertilizer consumption in Louisiana was toward a 1-4-4 ratio at planting time with the nitrogen applied at side dressing time. He pointed out that the vast amount of nitrogen that has been used in Louisiana has created a need for more lime since most of the nitrogen materials are on the acid side. Louisiana only used 91,000 tons of lime last year where they should have used 500,000 tons and most of the 91,000 tons went on pastures. Dr. Sturgis called attention to the alluvial areas of Louisiana where only nitrogen has been used in the past and indicated that the alluvial areas will need more and more complete mixed fertilizers. At least one-third of the sugar cane areas of Louisiana needs complete mixed fertilizers yet they are presently using only nitrogen. A need for more fertilizers on pastures was stressed. Dr. Sturgis estimated that the Louisiana farmers were only using ten per cent of the fertilizers on pastures that they profitably could.

1. Barney Grimm, Wonder-Gro Fertilizer Co., San Antonio, Lee Alberts, Southwest Potash Corp., Little Rock, F. L. Enlow, Delta Fertilizer Co., Helena, M. K. McConnell, Commercial Solvents Corp., Rayville, La., Fred Shuman, Farmers Fertilizer Co., Texarkana.
2. Warner Anthony, Farm Service, Inc., Opelousas, Jack Dulaney, Allied Chemical & Dye Corp., Bowling Green, Ky., Frank Reedy, Green & Reedy Fertilizer Plant, Franklinton, La., Joe Wright, Texas Farm Products Co., Nacogdoches.
3. W. H. Appleton, Potash Co. of America, Atlanta, Dr. W. H. Garman, NPFI, Washington, Bob McConald, Potash Co. of America, Carlsbad.
4. Earl Nichols, Nichols Fertilizer & Chemical Co., Parks Yeats, Dir. Feed & Fert. for Oklahoma, Jim Meigs, Nichols Fertilizer & Chemical Co., all of Oklahoma City.
5. James Campbell, Hal Hoffman, both with Virginia-Carolina Chemical Corp., Shreveport.
6. Harold Hamby, Chilean Nitrate Sales Corp., Shreveport, Ivan Gilmore, El Dorado Fertilizer Co., El Dorado, Dr. Niven Morgan, American Potash Institute, Shreveport.
7. Bill Tyler, Longhorn Construction Co., Sulphur Springs, Joe Sharp, Spencer Chemical Co., Kansas City, during their talks on granulation.
8. Gedge Gayle, Kelly, Weber & Co., Lake Charles, P. W. Gull, Spencer Chemical Co., Kansas City.
9. B. L. Mitchelson, Spencer Chemical Co., Dallas, P. W. Gull, Spencer Chemical Co., Kansas City, Harold Trammell, Farmers Fertilizer Co., Texarkana, S. B. Tatem, Houston, Lee Gray Shreveport, and Austin Cooke, New Orleans, all with Swift & Co.
10. Millard S. Perkins, Asst. Comm. of Agriculture in Louisiana, Dr. Arthur A. Smith, V-P, First Nat'l. Bank, Dallas, Z. H. Calhoun, Southern Cotton Oil Co., Little Rock.
11. Everett C. Horne, Bradley & Baker, New York, Bob Linderman, International Minerals & Chem. Corp., Chicago, Dick Goldthwaite, Monsanto Chemical Co., St. Louis.
12. Albert Kinnard, Allied Chemical & Dye Corp., Jackson, Miss., Frank Reedy, Green & Reedy, Franklinton, Bob Hays, Grace Chemical Co., Memphis, Dr. M. B. Sturgis, L.S.U., Baton Rouge, Earl Day, Ark-Mo Plant Food Co., Walnut Ridge, Ark.
13. Len Gopp, International Minerals & Chemical Corp., Chicago, Ken Crawford and Don Mahler, Southwest Chemical Co., McAllen, Sinclair McCoy, International Minerals & Chemical Corp., Chicago.
14. John Carlisle, Jacksonville Fert. Co., Jacksonville, Tex., Jack Taylor, Arcadia Cotton Oil Co., Arcadia, La.
15. Jud Drewry, International Minerals & Chemical Corp., Shreveport, W. R. Morgan, Hydrocarbon Products, New York, R. V. Falck, Phos. Chemicals Div., and Charles Scervino, Traffic Dept., both with International Minerals & Chemical Corp., Chicago.
16. Walter Young, Hi-Yield plant Food Co., Mt. Pleasant, J. R. Taylor, Jr., Grand River Chemical Co., Tulsa, Dean Smith, Hi-Yield Fertilizer Co., Bonham.
17. Harold Trammell, Farmers Fertilizer Co., Texarkana, and Joe Wright, Texas Farm Products Co., Nacogdoches.

1. Jack Dulaney, Cliff Walker, Dean Keller, all with Nitrogen Div., Allied Chemical & Dye Corp.
2. Golfers: Doug Kelly, El Dorado, Sam Clement, St. Louis, both with Monsanto Chemical Co., Dr. Russell Coleman, NPFI, Washington, Tom Wright, Texas Farm Products Co., and Gerald Millard, Dairyman, both from Nacogdoches.
3. Golfing, Southern style: Stanley Hackett, Dixie Fertilizer Co., Shreveport, Bill Crady, U. S. Potash Co., Meridian, J. C. Powledge, National Hotel Corp., Galveston, Dick Goldthwaite, Monsanto Chemical Co., St. Louis.
4. W. B. Porterfield, Jr., New York, Fred Broadway, Montgomery, Ala., both with National Potash Co., Bob Linderman, International Minerals & Chemical Corp., Chicago, Ralph Boynton, U. S. Potash Co., Atlanta.
5. Ogden Swann, Tennessee Corp., Atlanta, S. P. Rozas, Kelly, Weber & Co., Eunice, La., E. L. Jarrett, Geigy Agric. Chemical Co., Waco.
6. John Ziegler, International Minerals & Chemical Corp., Chicago, Fremont E. Lange, Ark-Mo Plant Food Co., Walnut Ridge.
7. Sid Keel, International Minerals & Chemical Corp., Chicago, Sam Nevins, Olin Mathieson Chemical Corp., Little Rock, Bob Linderman, International Minerals & Chemical Corp., Chicago.
8. Prior to dip in surf—Bob Linderman, Sid Keel, Jim Cookesley, all with International Minerals & Chemical Corp., Chicago, John Ground, III, Davison Chemical Co., Joplin.
9. Sam Nevins, Olin Mathieson Chemical Co.; others facing camera, M. G. Field, Meridian Fertilizer Co., Hattiesburg, Pat Wells, daughter of Mr. and Mrs. H. G. Wells, Armour Fert. Works, Dallas, L. A. Dhonan, Arkansas Plant Food Co., N. Little Rock.

Parks Yeats, director of Feed & Fertilizer Division for Oklahoma represented Oklahoma and Dr. M. K. Thornton of College Station, Texas, reported for Texas. Arkansas was reported on by Dr. Dale Hinkle, Fayetteville, Arkansas. Dr. Hinkle revealed that the tonnage of mixed goods in Arkansas for the year ending May, 1956 was 174,552 tons. The tonnage for 1955 was 155,105 tons. The plant nutrients in all fertilizers jumped from 111,633 tons in 1955 to 114,662 in 1956.

It was reported by the officials that East Texas, Louisiana and Arkansas need more lime. The authorities mentioned that they would like to have a minimum of 24 units of plant food in the grades registered in the Southwest. There was some discussion on this point and it was decided that the 24 minimum unit problem would be referred to the plant food committees of each state concerned.

The Resolutions Committee, Dr. B. B. Sturgis, L.S.U., Gerald Wakefield, Olin Mathieson Chemical Corp., Little Rock, Ark., and James Dawson, Jr., of Fidelity Chemical Corp., Houston, Texas, reported the various telegrams and resolutions forwarded during the meeting, one of which was to Dr. J. F. Fudge. The Planning Committee reported that the 1957 S.W. Fertilizer Conference would be held at the Galvez Hotel, Galveston, Texas, July 17, 18 and 19, 1957.

Weights, Measures Conference Report

The report of the 41st National conference on weights and measures, held in May in Washington shows two items of interest to the fertilizer industry. The discussion on fertilizer for lawns was held over awaiting a report from the American Petroleum Institute. The subject of inert liquid fertilizer, held over from last year, is reported as follows: "Inert liquid fertilizers shall be sold by volume based on the US standard gallon of 231 cubic inches at 60°F., its multiples and binary submultiples, or by avoirdupois weight." the temperature stipulation was included because pressure is a determining factor.

900 Enter Spencer Sweepstakes

Fertilizer dealers from Kansas, Missouri and Nebraska received top prizes in Spencer Chemical Company's "Fall Application Sweepstakes" which was completed recently. Held as part of the company's Fall Application sales campaign the "sweepstakes" drew over 900 entries from a ten-state area.

Council Publishes Cotton Market Folder

National Cotton Council has issued a pamphlet which should be read by every factor in the cotton belt. It covers the problem of the present "critical" time for cotton, and tells of the program which aims at lowered costs, improved quality and the promotion of sales. It concludes with a plea of all-out support by all interested in the production of the staple.

Pac. NW Assn. Issues First Call For Convention

The seventh annual convention of the Pacific Northwest Plant Food Association will be held November 7-9 at the Harrison Hot Springs Hotel, Harrison Hot Springs, British Columbia. The main program days are Thursday and Friday with the annual banquet on Friday night. Lee Fryer, in charge of the program announces he has lined up Dr. E. R. Jackson, Oregon State; Arthur Laing, Member of Parliament; George Crabtree, formerly in charge of the fertilizer division of Buckerfields, Inc.

The following are the committees:

General Chairman, Robert Allard; Program, Lee Fryer, Chairman; Registration and Banquet, R. H. Goldberg, Chairman, Russ Hays, Don Cochran; Golf Tournament, Robert Fulton, Chairman, John Hooper, Jack McConkey; Reception, Ferd Herpers, Chairman, Reg. Davidson; Entertainment, Lyman Judson, Chairman; Raffle, Leck Rowden, Chairman; Finance, Frank Taylor, Chairman, Bud Wolfkill; Ladies Entertainment, Joan Fulton, Chairman, Jane Tremblay, Florence Waltersdorph.

Reservations should be made direct with the hotel.

Solutions Association Plans Expansion

The Board of Directors of the National Nitrogen solutions Association, at a meeting on June 13th, 1956, made plans for an extensive expansion of the services and activities of the Association.

Among their decisions was the retaining of professional trade association management to handle all of the affairs of the Association. On June 20th, 1956, the association management firm of Storms and Westcott, 2217 Tribune Tower, Chicago was selected to manage the affairs of the Association under the direction of the Officers and Board.

The Board of Directors contemplate that many activities will be implemented very soon with expansion into other services as rapidly as possible.

The executive secretary, appointed by the board is Muriel F. Collie, staff counsel and executive assistant in the firm of Storms and Westcott. She is a graduate of Northwestern University School of Law, with an LLB Degree, and a member of the Bar of Massachusetts. For sixteen years she was assistant secretary of the Grinding Wheel Manufacturers Association and the Abrasive Grain Association, and has had extensive experience in all phases of trade association management.

Many of the activities proposed by the Board of Directors will be undertaken immediately, and there is every expectation that the membership and activities of the Association will increase rapidly in the months ahead.

Plans have been made to have a full report of progress at the meeting of the Association to be held in Sioux City, Iowa, October 15 to 17, 1956, when a large attendance is expected for the Annual Trade Show and the Business Sessions.

Iowa Bankers Use 40,000 NPFI Folders

The Iowa Bankers Association, in cooperation with Iowa State College and the National Plant Food Institute, has distributed 40,000 copies of a 4-page folder emphasizing the importance of soil testing.

The soil fertility leaflet was designed by the Institute.

Five thousand copies of the folder were supplied to agricultural workers by the Iowa State College, reports Russell Coleman, executive vice president of the Institute.

Grace
urea prills
highest nitrogen content 45%
most versatile nitrogen fertilizer
Sure source of profit on resale
Wherever nitrogen is needed, Grace Urea Prills are effective and recommended. For no other solid fertilizer offers more nitrogen per pound to the soil. This alone makes Grace Urea Prills a sure resale item for you.
Best source of nitrogen for your mixed fertilizers
Grace Urea Prills improve the effectiveness and physical condition of your mixed fertilizers. Grace Urea Prills are an effective conditioner. Fertilizer mixtures with Grace Urea Prills have a softer, crumbly texture. And Grace Urea Prills are your superior source for nitrogen in mixed goods.
GRACE CHEMICAL COMPANY
UREA PRILLS
memphis tennessee
Grace chemical co.

Man feeds the land

The importance of nitrogen to the soil is well known. Our agricultural chemicals industry is meeting the nation's rapidly expanding need for this essential element through increased production of ammonia. Applied in fertilizers, or directly into the soil, ammonia is doing much to revitalize the tired earth.

Lummus is currently engineering and constructing a number of ammonia plants in widely separated parts of the world. Our experience, which covers over a half century, is broad in chemical plants and petroleum refineries. Perhaps our staff and facilities can complement your own on *your* next project.

THE LUMMUS COMPANY, 385 Madison Avenue, New York 17, New York. *Engineering and Sales Offices:* New York, Houston, Montreal, London, Paris, The Hague, Bombay. *Sales Offices:* Chicago, Caracas. *Heat Exchanger Plant:* Honesdale, Pa. *Fabricated Piping Plant:* East Chicago, Ind.

LUMMUS

ENGINEERS AND CONSTRUCTORS FOR INDUSTRY

Earl Nichols Tackles A Tough One

When planning their spring sales promotion program for 1956, the Nichols Fertilizer and Chemical Company of Oklahoma City was faced with a tough situation. This was to be their first spring season in the highly competitive farm fertilizer field. Their huge plant had to be kept busy and sales had to be generated early in order to level out the work load on production facilities. Nichols was also faced with tackling a market situation where price-cutting was common practice.

Even though the Nichols "Thrifty" trade name was well known in the farm-field, because of the long-established reputation of the Nichols Seed Co., Earl Nichols, president of the Nichols Fertilizer and Chemical Co. felt that an outstanding promotional effort was needed to launch Nichols Farm Fertilizer. Because both Nichols companies used colorful red Skotch Plaid as a trademark, it was a "natural" to offer nationally-advertised "Skotch" products as premiums with fertilizer purchases. The campaign was launched in February, offering Skotch Koolers, Skotch Jugs, Skotch Kaddies and Skotch Grills with the purchase of Nichols Farm Fertilizer. The Skotch Kooler or Grill was given with the purchase of a ton of high analysis grades of fertilizer. The Skotch Jug or Kaddy was given with the purchase of a ton of standard analysis grades. The offer was advertised as "for a limited time" in order to encourage early buying. And encourage early buying, it did.

Right from the start, the campaign was an outstanding success. Mailing pieces were sent to dealers, outlining the free offer. Tie-in mats were sent to dealers to help them get their share of the business. Point-of-purchase pieces were prepared, including window streamers, door stickers, wrap-around strips for the product bags and interior banners. The free offer was promoted with hard-hitting advertising in newspapers, farm magazines, radio and television throughout Oklahoma and part of Texas and Kansas. Even though advertising of the free offer was stopped March 31st the demand continued for at least six weeks.

To further stimulate interest among Nichols Farm Fertilizer Dealers, a "Crop'O' Prizes" contest was launched, with a Ford Automobile being offered to the dealer who sold the most fertilizer. This was a contest where "Everybody Wins;" however, as dealers earned valuable premiums for all sales, regardless of where they finished in the contest.

Success of the campaign can be judged by the fact that, even though Nichols Farm Fertilizer was new on the market, sales this spring represented a big percentage of Oklahoma's fertilizer sales in the analyses Nichols manufactures.

Plans are being made now for fall. Mr. Nichols said: "The people who bought our fertilizer this year know we have a superior product, so we will face the fall market with brighter prospects than we had in the spring. However, we are planning another heavy advertising and sales promotion program."

Earl Nichols, President, gives Skotch Kooler to Eddie Lightner of Oklahoma County, one of the first Oklahoma farmers to take advantage of offer.

300 At S. C. Gathering

Some 300 fertilizer manufacturers, dealers and salesmen operating in South Carolina and surrounding states gathered at the Edisto Experiment Station in Barnwell County for the annual South Carolina fertilizer meeting.

The feature of the meeting was centered around the vast experimental program underway at the branch station, and included a tour of the station's 2,200 acres for a look-see at the vast number of the important research projects underway.

Groups were loaded on trucks as they arrived at the station and were conducted on tours with stops at some 11 or 12 of the principal projects located on the experiment station farm.

The stops provided opportunity for the groups to see work in progress on new melon varieties, grass, rates of nitrogen on Coastal Bermuda, pulp and timber bamboo experiments, cotton plots, rates and sources of nitrogen, new cantaloupe and tomato varieties, fall and spring applications of fertilizer to cotton and corn and beef cattle.

During the afternoon the group gathered at the Barnwell State Park for a barbecue, watermelon cutting and short talks by various agricultural leaders.

Those appearing on the program included Dr. W. A. Barnett, Greenwood, Clemson College trustee; Robert L. Stoddard, Spartanburg, Clemson College trustee; Dr. M. D. Farrar, dean of agriculture, Clemson; Dr. O. B. Garrison, director, South Carolina Experiment Station; Dr. J. W. Jones, director of Agriculture Teaching, Clemson; G. B. Nutt, director, South Carolina Extension Service; Dr. Tom Buie, Soil Conservation Service, Columbia; Dr. R. A. Mays, assistant state veterinarian; and Dr. G. H. Collings, head of the Clemson agronomy department.

The meeting was concluded with a watermelon cutting. B. D. Cloaninger, director, Clemson Department of Fertilizer Inspection and Analysis, arranged the program and was in charge of the day's activities.

Nine Reasons for Fall Fertilizing

- **Price discount.**
- **Elimination of storage.**
- **Less handling and labor.**
- **Takes load off spring rush.**
- **Less trouble from soft fields and roads.**
- **Weather is more favorable.**
- **Legumes or fall-seeded crops get a growth boost before over-wintering, and get a quick start in spring.**
- **Stalks, stubble and trash decompose faster, especially with fall nitrogen application.**
- **Fall soil samples are easier to take, are returned in less time, and show accurate inventory of nutrients at end of crop season.**

from "The Farmer"

Sackett Builds The Equipment You Need

- Continuous Granulating Units
- Plant Modernization Programs
- One Man Batch Weigh Systems
- Mixing and Shipping Equipment

Aerating Equipment
Automatic Control Equipment
Basing Units
Belt Conveyors
Bucket Elevators
Centralized Control Systems
Continuous Acidulating Processes
Continuous Ammoniating Systems
Conveyors
Coolers
Crushers
Disintegrators
Dry-Mixing Units
Dust-Arresting Equipment
Fume Scrubbing Systems
Hoppers and Spouts
Materials Handling Equipment
Milling and Screening Units
Multiple Hopper Batching Systems
Oil Fired Dryers
Plant Mechanization Systems
Pneumatically-Operated Gravity Batch Mixers
Pneumatically-Controlled Valves
Pulverizers
Sackett Timken Bearings
Sacking Units
Scales
Screens
Shipping Units
Shuttle Belt Conveying Systems
Tailing Mills
Vacuum Condensing Systems

GET THE RIGHT ANSWER TO YOUR PRODUCTION PROBLEMS get Sackett

SACKETT

THE A. J. SACKETT & SONS CO.
1727 S. HIGHLAND AVENUE
BALTIMORE 24, MARYLAND

Mid-West Soils Coming Up; Sherman, Chicago, Oct. 25

Plans are being speeded for the annual meeting of the Middle West Soil Improvement Committee, Thursday, October 25, at the Sherman Hotel in Chicago.

In addition to the morning business meeting, a new feature this year will be a short afternoon session devoted to a showing of new MWSIC visual aids.

The afternoon program will be paced so that MWSIC members will have plenty of time to catch planes and trains back home after the meeting.

Scheduled for showing will be selected pictures from color film strips, TV shorts and other promotional aids designed to spur the use of fertilizer.

The morning annual business meeting will be opened by President W. M. Newman at 9:30 a.m.

On the agenda will be detailed reviews by MWSIC Executive Secretary Z. H. Beers, of the results of the committee's 1956 educational publicity work with farm magazines, daily and weekly newspapers, radio stations, county agents and other extension workers.

Summaries will be presented of the results of field trips by MWSIC staff members, work with colleges and experiment stations and contacts with research agronomists and extension men. State-by-state reviews will be presented on MWSIC-supported research on fertilizer use at the various colleges.

Reports will also be given on membership, new projects and activities for the coming year. The 1955-56 budget will be presented for approval by the members.

HOW TO DOUBLE OUR TONNAGE

by P. J. Bergeaux
Extension Agronomist-Fertilizer
College Experiment Station, Athens, Ga.

What would it mean to fertilizer dealers and farmers in Georgia if the approved fertilizer recommendations were followed? The following chart will indicate the potential of increased fertilizer use and increased farmer income if farmers would fertilize their crops according to the 1956 College of Agriculture fertilizer recommendations.

According to a county agent survey in 1955, 192,000 tons of fertilizer and 65,000 tons of 17% nitrogen side dressing was used on 890,000 acres of cotton; 441,000 tons of fertilizer and 187,000 tons of 20% nitrogen side dressing used on 2,795,000 acres of corn and 250,000 tons of fertilizer and 95,000 tons of a 23% nitrogen top dressing used on 1,226,000 acres of temporary and permanent pastures.

It is apparent from the chart that the greatest potential in expanded fertilizer use is on pastures and corn.

Had the approved fertilizer recommendations been carried out in 1955 on cotton, corn and pastures, an additional 1,258,062 tons of fertilizer and nitrogen materials would have been used which is just about double the amount that was actually used. By following the fertilizer recommendations and other approved cultural practices, farm income can be increased by over $200,000,000.

Crop	Additional Fertilizer Above that used (in tons of 4-12-12)	Additional Nitrogen Above that used (in tons of 20% Nitrogen)	Possible Increased Farmer Income Above Extra Fertilizer Costs
Cotton	97,000	52,000	$24,920,000
Corn	257,140	271,922	$125 775,000
Pastures	400,000	200,000	$50,856,000
Totals	754,140	523,922	$201,551,000

Cotton calculated at .32 per lb. lint, corn at $1.50 per bu. and beef at .16 per lb.

In 1955 Georgia consumed 1,299,654 tons of fertilizer including nitrogen top and side dressing.

THE NEW SACKETT STAR* GRANULATOR

The Sackett STAR Granulator is an entirely new and revolutionary approach to the granulation of fertilizer mixed goods.

Here's what the STAR will give you:

CONTROLLED GRAIN SIZE

New concept of grain size control. Larger percentage in 6 by 16 mesh range, smaller portion of oversize.

HIGHER PRODUCT RECOVERY

Up to fifty percent increase in product recovery, because of its inherent, vigorous rolling—*not sliding*—action.

HIGHER PRODUCTION CAPACITY

More granulation the first time through, means substantially higher production capacity.

LOWER DRYING COST

Higher percentage of on-size in initial granulation means less fuel cost per ton due to lower hydration of total feed.

* U.S. and Foreign Patents Pending

THE A. J. SACKETT AND SONS COMPANY
SACKETT EQUIPMENT
1727 S. HIGHLAND AVE.
BALTIMORE • MARYLAND

Established fertilizer producers are invited to get our up-to-the-minute counsel on their conversion and expansion programs. It is available without cost.

Architects and Manufacturing Engineers to the Fertilizer Industry Since 1897.

America's Foremost Creative designers & Builders of Commercial Fertilizer and Superphosphate Plants . . . Related Production Equipment

ALABAMA

Covington Fertilizer Company, Andalusia, president, **C. F. Booth** wrote this letter to the Birmingham News which well heads this department this month:

"Your editorial on the shrinkage of the dollar in the June 25 issue of The News is correct in general, but it does leave the impression that electric power is the only industrial material which has not advanced sharply.

"If you will investigate the situation on fertilizer prices, especially in this area, you will find that the 1956 fertilizer dollar is worth about 110 cents as compared with the 1945 dollar. This is in contrast with your figure of 100.3 cents for the electric power dollar.

"How the electric power companies have managed to operate without price increases is a question we cannot answer. In the case of the fertilizer companies the answer is simple. They have achieved the price decreases by the simple expedient of selling below cost and losing money for the past several years in a price war which threatens the very existence of the industry, and thus threatens the future supply of fertilizer."

* * *

Wiregrass Plant Company is in a live-wire town, Hartford. Some time back, when the railroad was about to desert them they pooled resources and bought the branch line, which is paying dividends, by the way. Wiregrass was built on $160,000 locally subscribed, and is a 100 hourly ton plant. President is **J. A. Anderson,** with **A. O. Blackman** as manager. They say the town would have subscribed a quarter of a million, if asked to.

* * *

TVA is about ready to put to work its storage plant at Sheffield, which will permit levelling off of its production schedules on bagged nitrogen fertilizers. The storage capacity is 16,000 tons—approximately one month's production. Handling throughout is by conveyor belt and fork-lift trucks.

CALIFORNIA

California Spray Chemical has let contract to **Ehrhart & Associates,** who have already begun construction on their ammonium sulfate crystallizing unit, part of the multimillion plant being put up at Richmond. The unit will have 150 daily tons capacity.

COLORADO

Construction of a phosphoric acid unit by **Monsanto Chemical Company** will get underway immediately at **The Colorado Fuel and Iron Corporation's** plant in Pueblo. The phosphoric acid unit, the first of its particular kind and size, has been engineered specifically to meet the needs of the CF&I coal chemicals operation; the installation is a unique and pioneering move.

Elecrtic furnace elemental phosphorus will be shipped from Monsanto's plant at Soda Springs, Idaho, to Pueblo, where it will be burned in the new unit to make phosphoric acid. This acid will then be pumped directly into the CF&I plant system for use in the production of diammonium phosphate, a high analysis fertilizer material being marketed by CFI under the trade name of DAP.

The use of phosphoric acid, instead of sulfuric acid, for recovery of ammonia from coke oven gas was pioneered by CF&I in January, 1955. Engineering and construction work is being handled by CF&I, Vern E. Alden Company of Chicago, and Monsanto.

FLORIDA

Merchants Fertilizer & Phosphate suffered a fire estimated at thousands of dollars lost. The plant was established in 1927, destroyed by fire in 1954 and rebuilt then. This time **Moultrie J. Clements III,** president, said no decision had been reached as to whether the plant would be again rebuilt.

GEORGIA

Port Wentworth Corp., Savannah, has leased a 1,985 acre tract for potash and mineral exploration to a group which has formed a Georgia corporation for the purpose, organized by **James Rossin** of Detroit and **William R. Overbeck** of Miami Beach. The lease was negotiated by **Floyd E. Snow,** board chairman of the chemical structural and industrial development firm of **Baltimore-Florie.**

IDAHO

The Bunker Hill Company, Kellogg is, according to its president **John D. Bradley,** studying a possible entry into the fertilizer business as an added outlet for its sulphuric acid production.

ILLINOIS

The Texas Co. has awarded a contract to **Foster Wheeler Corp.** for the design, engineering and construction of a synthetic ammonia plant at the Texas Co. refinery at Lockport, Ill. This plant, which will have a capacity of 180 tons of ammonia daily, is scheduled for completion in 1957.

MICHIGAN

R 'n S is the name of a corporation, founded by **Harry Rohlfs** and **Stanley Smith,** to build a liquid fertilizer plant in Caro, which can be operated by two men. It will have storage for 500 tons. It will produce 8-24-0, 6-18-6 and 5-18-8.

MINNESOTA

Minnesota Peat Cellulose & Chemical, Hibbing, are marketing a peat plant growth stimulant known as Humus Extract, and are working on further developments from peat. Arthur Clusiau is president. They are reported planning a $200,000 plant—the present product being turned out in a pilot operation at the rate of 12 daily gallons.

MISSOURI

Swift & Co. are well along with construction of their new plant at St. Joseph—a 144 by 390 foot one-story structure, with a separate one-story office building. **R. W. Finch,** to be manager, has already set up temporary headquarters in St. Joe, and expects to be shipping by February.

NEW YORK

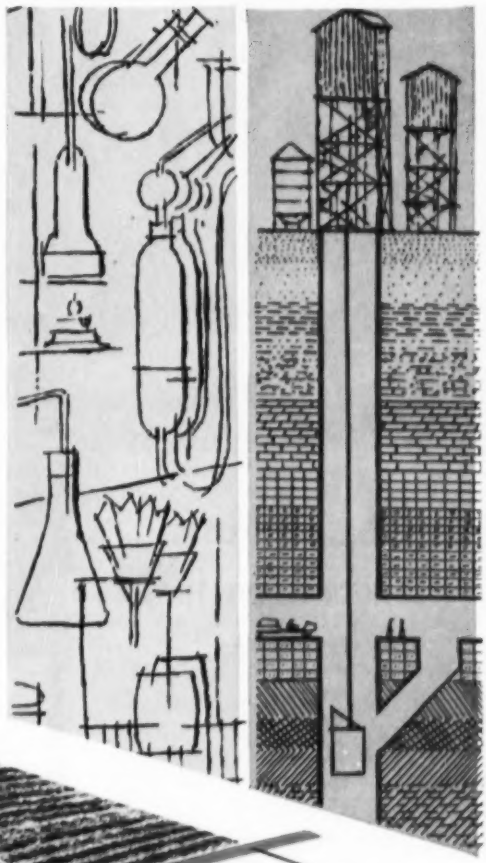
Olin Mathieson's benzine hexachloride unit at Niagara Falls is believed to have been the center of the explosions that did so much damage there last month.

LOOK TO NATIONAL POTASH FOR QUALITY AND SERVICE

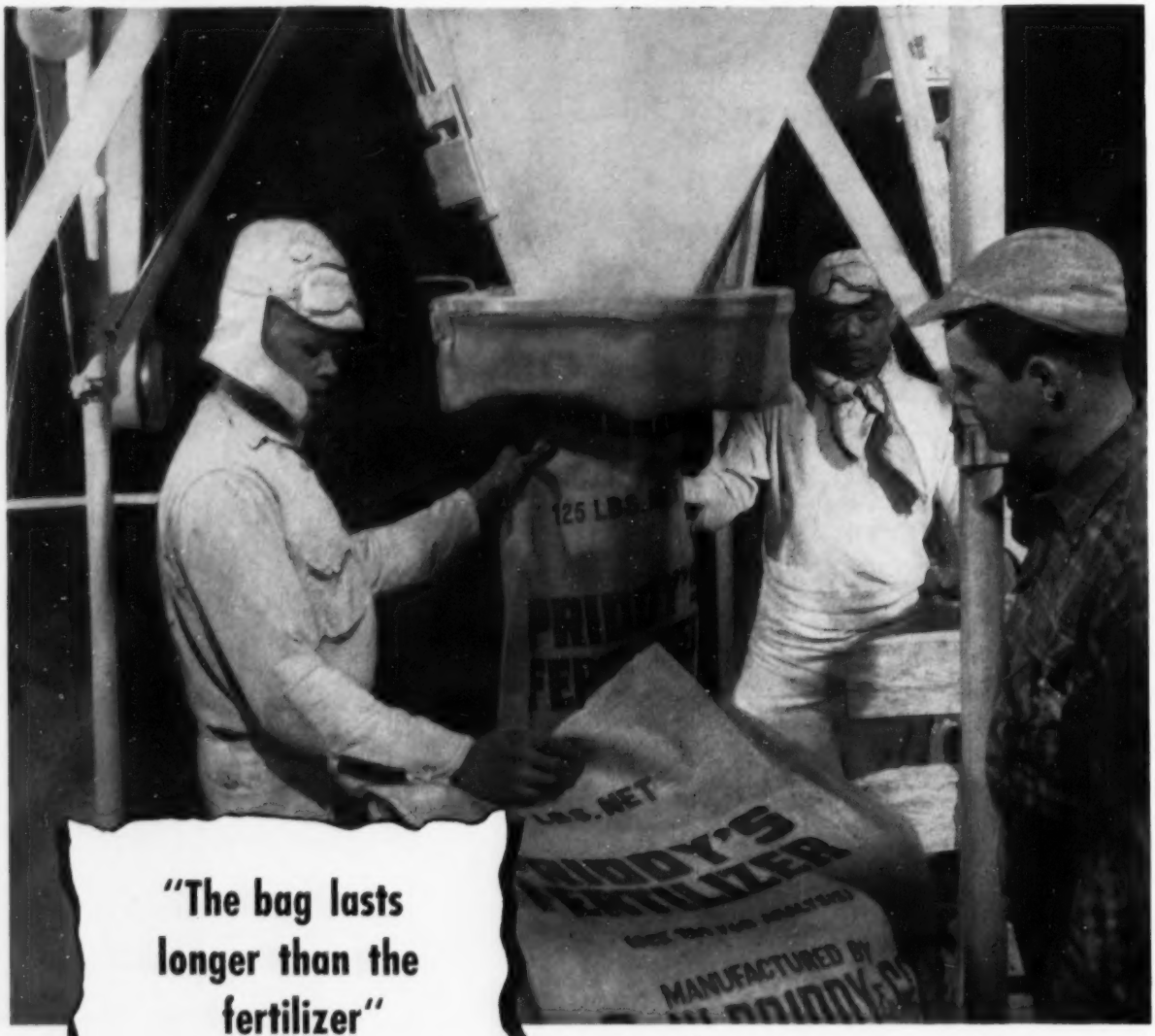
Backed by the skills and experience of its parent companies – Pittsburgh Consolidation Coal Company and Freeport Sulphur Company – NATIONAL POTASH offers important advantages as a dependable source of quality potash.

NATIONAL's mining operations and refining processes will include the very latest industry techniques, and its storage and shipping facilities have been planned to meet efficiently the demand of the peak fertilizer season.

In addition, NATIONAL POTASH provides a free, comprehensive Technical Service to help manufacturers with granulation, formulation and other production problems. Write for complete information.



NATIONAL POTASH COMPANY
205 EAST 42nd ST. • NEW YORK 17, N.Y.



"The bag lasts longer than the fertilizer"

says Sydnor Y. Priddy, president of Charles W. Priddy & Co., fertilizer manufacturers of Norfolk, Virginia. "Farmers want their fertilizer in burlap so they can use the bags to pack their own produce after they've used the fertilizer. Burlap bags have more uses around a farm than you can name.

"We know that burlap is safer for shipping fertilizer than any other kind of bag. No matter how they go—by train or truck, they won't chafe, break or tear."

Pack your fertilizer in burlap bags for easier handling in the plant and better protection during shipping. Use "bag appeal" to sell more fertilizer to farmers in your area.

Just ask your own customers—

they'll tell you that burlap

Is strong — takes dragging, dropping, *man-handling* — any tough job on the farm.

Gives good ventilation — keeps farm supplies and products fresh.

Laughs at sudden showers — wetness or dampness can't weaken it.

Saves money — extra value from re-sale and re-use.

Saves storage space — stacks to any height without slipping.

Has 1000 uses — always in demand on the farm (popular with farm wives, too!)

THE BURLAP COUNCIL
of the Indian Jute Mills Association
155 East 44th Street, New York 17, N. Y.

OHIO

Royster will build their 23rd plant in Piqua at a 25-acre site on the Union-Shelby road alongside the Pennsylvania railroad. The 200 x 400-ft. wooden building will be straddled by rail sidings. Construction will begin immediately.

• • •

American Agricultural Chemical has begun expansion of its Washington C. H. plant bought last year from **M. Hamm Co.** The improvement is largely devoted to storage facilities, with the most modern handling equipment. **Clarence W. Maddox** is plant manager.

• • •

Virginia-Carolina held open house in their new plant at Orrville which can produce 25,000 annual tons of fertilizer, one of 41 such plants. **Tom Rutledge** is superintendent.

• • •

The Texas Company has recently awarded a contract to the **Chemical and Industrial Corporation** of Cincinnati, Ohio, for the design and construction of a 200 ton per day Nitric Acid Plant which will be equipped with a fume elimination to remove the nitrogen oxides from the exhaust gases from this plant and an Ammonium Nitrate Solutions Plant which will be equipped with the CSC Stengel Reactor. This plant will be capable of producing solutions A, B, C, D, and U at the rate of 174 tons per day. This plant will go on stream during 1957.

PENNSYLVANIA

McKeesport has in operation its new plant to produce fertilizer from garbage and trash, which cost $250,000 and which was built by the **Organic Corporation of America.** But several weeks before the opening a mysterious fire damaged the office building, and set police to probing the origin of the car seen leaving just before the fire broke out.

SOUTH DAKOTA

Crest Chemical, early last month, began construction of its $200,000 fertilizer plant at Watertown. The concern was organized by a local group. The plant will turn out 12,000 annual tons.

TENNESSEE

Tennessee Farmers Cooperative has bought the **Apco Fertilizer** plant at Halls from **Mid-South Chemical** for $47,000, according to general manager **J. Franklin Nix.** They also operate plants at Lavergne and Rockford.

• • •

Knoxville Fertilizer, having since 1939 cleared and developed their now famed Cumberland Mountain Potato Farm, are selling off 550 acres and keeping 1500. The farm has produced more than $2,000,000 worth of farm products, according to **A. Carter Myres,** Knoxville's president.

TEXAS

Phillips Chemical Center, near the San Jacinto Battleground, Houston, which was involved in a railroad battle, may now proceed—the railroads serving Houston having arrived at an accord as to switching services to the Center. As our readers know, the Phillips plan is to sell sites to firms interested in the availability of natural gas and other raw materials in the Center. **Celanese** and **M. W. Kellogg** have already announced plans for huge operations there.

UTAH

Garfield Chemical & Mfg. Corp. is increasing its production of sulphuric acid to 1100 daily tons by construction at Garfield of its fifth sulphuric plant.

• • •

Western Phosphates will spend some $2,000,000 to expand its plant near Garfield. Western is a joint affiliate of **Stauffer, American Smelting** and **Kennecott Copper.** By the first of the year their facilities for liquid nitrogen-phosphate fertilizers should be ready for production.

VIRGINIA

Virginia Farmers Union Service Corp., chartered with $100,000 of capital "to promote marketing cooperatives" has been established in Richmond, with John B. Vance as president.

WASHINGTON

Cominco Products, Spokane, expected as we went to press to have completed their $1,000,000 building, which encompasses 240,000 square feet, with room for 50,000 tons of bagged fertilizer and facilities for storing and shipping liquid fertilizer.

• • •

Edna Bay Pure Stone Co. are planning a $5,000,000 plant at Vancouver to work Alaskan lime. **Alcoa** was to develop this lime, but when the Canadian Government rejected their hydroelectric power plans, Alcoa abandoned the project.

WISCONSIN

Elko Fertilizer Co., Elkhorn, has been incorporated with authorized capital stock of 1,250 shares. Incorporation papers were signed by Nathan J. Eck, Williams Bay, Wisc., who is also president of Elkhorn Chemical, Inc., producers of various agricultural chemicals. The Elko Fertilizer Co., is an entirely new company and will manufacture and sell mixed complete fertilizer solutions and aqua ammonia; also solutions containing aldrin will be marketed by Elko.

AUSTRALIA

Risdon Zinc has put into production its 55,000 annual ton ammonia plant at Hobart.

CANADA

Nichols Chemical, Allied Chemical & Dye subsidiary, expects to complete this year its aluminum sulfate plant near their Barnet Works in British Columbia.

• • •

North American Cyanamid will use by-product hydrogen from the coke ovens of **Dominion Foundries and Steel** for its anhydrous ammonia plant near the Dominion operation, which will also supply oxygen.

INDIA

Nangal Fertiliser and Heavy Water plant will be located just across the river from Nangal township. Acquisition has been started on the needed 1,360 acres of land. The plant will be able to turn out 200,000 annual tons of ammonium nitrate and 7 to 8 tons of heavy water.

IRAN

Iran has appointed **Union Chimique Belge** as consulting engineers for the 100,000 annual ton nitrogenized fertilizer plant to be built there.

JORDAN

Jordan, Lebanon, Syria, Iraq, Saudi Arabia and **Egypt** have jointly agreed to establish a company in Jordan, to extract potash from the Dead Sea.

MEXICO

Pan American Sulphur expected to go into production with their expanded facilities at Jaltipan the first of this month, according to president Harry C. Webb.

• • •

Texas International Sulphur is all set now to build their Frasch Process plant, a start to be made within the next year. It is expected to be capable of 1000 daily tons and will cost in the multi-million bracket. It will draw on its concessions on the Isthmus of Tehuantepec.

• • •

Fertilizantes de Mexico S. A., has French financing for the $11,000,000 ammonia plant slated to turn out 100 daily tons, and to be ready for business in the middle of 1958. The plant is to be located at Monclova, Coahuila.

PAKISTAN

Pakistan Industrial Development Corp. has concluded a contract with a delegation from India to supply gypsum to the **Sindri Fertilizer Factory,** New Delhi.

PERU

Olin Mathieson Chemical has announced it will cooperate with Peruvian government agencies in a series of tests part of a research program aimed at improving the quality and yield of various agricultural crops such as cotton, rubber, tea, coffee, potatoes, cacao and pasture. The experiments on fertilizers and fungicides in which OM are cooperating are part of a program in many countries established during a recent tour by **Dr. Elif Miller,** chief agriculturist for the Chemicals International division of OM.

PHILIPPINES

Atlas Consolidated Mining & Development is planning an acid and fertilizer plant near its Toledo copper mine to cost $3,500,000. The plant, which will turn out the pyrite type of fertilizer required by the Philippines and the Far East, will include sulphuric, phosphoric and acidulation facilities.

NEARLY 11 MILLION ACRES UNDER RESERVE PROGRAM

Nearly 500,000 farmers had signed 10,720,749 acres of cropland under the 1956 Acreage Reserve Program of the Soil Bank through the final sign-up date of July 27, according to preliminary reports received by the U. S. Department of Agriculture from State Agricultural Stabilization and Conservation (ASC) offices on participation in this year's program.

"While the Soil Bank program became available very late in the 1956 planting season, the sign-up figures show a widespread interest on the part of farmers in the new program," Acting Secretary of Agriculture Earl L. Butz said. "This indicates a successful operation in 1957 and later years. These encouraging participation figures result from the prompt manner in which the program was brought to farmers by state and county farmer committeemen and others. It is obvious the farmers of this nation look to the Soil Bank as an opportunity to deal positively with their surplus problems. It is most heartening that some progress toward this end will be made on 1956 crops.

"We are now readying the 1957 Soil Bank program for the coming year and will very shortly be moving to the field organization with the Conservation Reserve program and the 1957 Acreage Reserve program, particularly for winter wheat. The experience gained so far this year and the widespread interest of farmers in the program indicate a major advance should be made next year in bringing our surpluses into line."

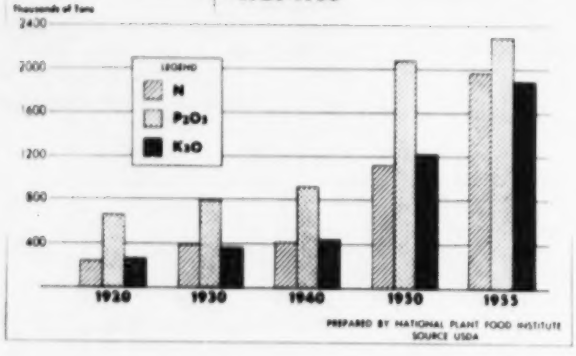
A half-million farmers can earn nearly $225,000,000 if the requirements of the program are complied with for the 495,432 agreements signed for the 10,700,000 acres of cropland. These totals are substantially final for the 1956 program, but minor adjustments may be required when tabulation is completed.

Only farms with corn "base acreages" or allotments for wheat, cotton, rice, peanuts, or tobacco are eligible to participate in the Acreage Reserve Program, which is designed primarily to reduce current production of these six basic crops.

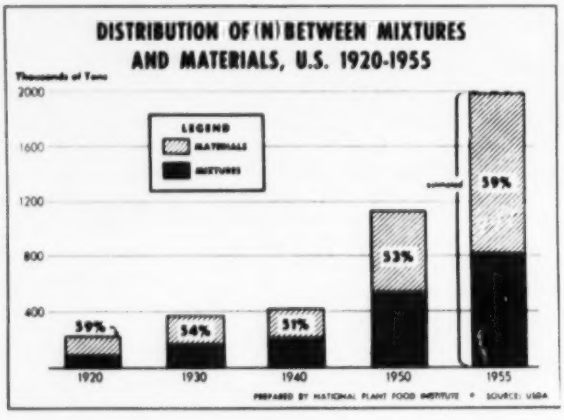
INSTITUTE INDUSTRY DATA

Industry comparisons from material presented in slide form by R. W. Allstetter of NPFI, at the recent Kentucky Annual Fertilizer Conference in Lexington.

U.S. CONSUMPTION OF PRIMARY PLANT NUTRIENTS 1920-1955



DISTRIBUTION OF (N) BETWEEN MIXTURES AND MATERIALS, U.S. 1920-1955



FERTILIZER USED BY CROPS

United States

CROP	1940 Thousand Tons	1954 Thousand Tons
Corn	3,275	6,019
Cotton	1,484	2,071
Wheat	1,114	1,485
Hay	882	911
Pasture	888	1,754
Vegetables	1,550	1,347
Non-farm	550	1,980

SOURCE Report by A. L. Mehring, BETTER CROPS WITH PLANT FOOD, February 1956
Prepared by NATIONAL PLANT FOOD INSTITUTE

Fertilizer consumption trends

(UNITED STATES)*

Direct application, short tons	1950-51	1951-52	1952-53	1953-54	1954-55
Anhydrous ammonia	118,623	168,273		350,674	354,000
Nitrogen solutions (includes aqua ammonia)	34,683	42,284	72,917	181,582	341,000
Liquid mixed fertilizer	—	—	—	27,548	53,000 **
Mixed fertilizer	13,970,382	15,066,340	15,722,224	15,341,676	15,348,000

* Based on data supplied by USDA
** Estimate
Prepared by the National Plant Food Institute

IN PEACHES, POTASH-ENRICHED FERTILIZERS MAKE THE DIFFERENCE

with sufficient potash

without sufficient potash

It makes quite a difference in size and yield—and in the farmer's profit, too—when the basic nutritive elements in a soil are replenished with balanced fertilizers. Potash, a necessary ingredient of these balanced fertilizers, builds up the resistance of crops to diseases, while increasing both quality and yield.

USP's high-grade muriate of potash has the highest K_2O content and is free-flowing and non-caking—important advantages in the manufacture of these modern fertilizers which help American farmers to better crops and better incomes.

UNITED STATES POTASH COMPANY

DIVISION OF UNITED STATES BORAX & CHEMICAL CORPORATION

30 Rockefeller Plaza, New York 20, N. Y.

Southern Sales Office
Rhodes-Haverty Building, Atlanta, Georgia

REG. U.S. PAT. OFF.

HIGRADE MURIATE OF POTASH 62/63% K_2O

GRANULAR MURIATE OF POTASH 60% K_2O MIN.

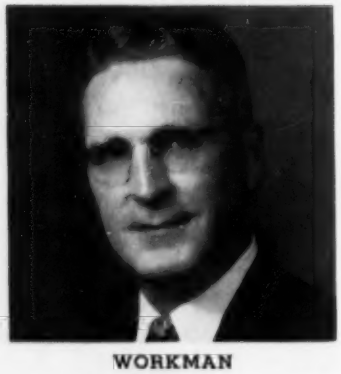
Personals

Virginia-Carolina Chemical's new management is now headed by former Virginia Governor, **John S. Battle** as board chairman, with **William C. Franklin** as acting president. **F. Elmore Butler,** has been made general counsel, and to succeed him as secretary **Richard E. McConnell** has been appointed.

C. Cecil Arledge, vice-president in charge of sales, has named **A. Percy Gates** as general sales manager, fertilizer division; **John L. French** and **Charles E. Workman** as divisional sales manager. Both have been with VC for many years.

GATES

FRENCH



WORKMAN

Spencer Chemical Company has announced the election of **James F. Brownlee** of New York, a partner in **J. H. Whitney and Company,** to the company's board of directors, to fill the vacancy created by the resignation of **William H. Jackson,** also a J. H. Whitney and Company partner, who resigned to accept an appointment from President Eisenhower as a Special Presidential Assistant.

Dr. Kenneth P. Dubrovin has joined Spencer as staff member in the chemical research department, specializing in soil chemistry, and will be assigned to the central research laboratory located at the company's Jayhawk Works near Pittsburg, Kansas.

* * *

Richard T. Ozimek has been named supervisor of petrochemicals market research for **Commercial Solvents Corporation,** according to an announcement by **Dr. Frank E. Dolian,** manager of the market development department.

Mr. Ozimek served for some years as a research chemist at Picatinny Arsenal. Most recently he held the position of market analyst with the **National Aniline division** of **Allied Chemical and Dye.** In his new capacity, he will be responsible for coordination of all market research for the Company's petrochemical products.

* * *

The appointment of **William W. (Bill) Johnson** as technical service representative has been announced by **John L. Sanders,** sales manager, **Mississippi River Chemical Company.** Mr. Johnson will assist **Bradley & Baker,** distributors of agricultural products produced by Mississippi River Chemical Company, in the proper use of the products furnished to fertilizer manufacturers. Mr. Johnson spent the last year and a half with **American Nitrogen Corporation** at Humboldt, Iowa. This involved the handling of nitrogen solutions and producing complete liquid fertilizers.

* * *

Charles M. Miller, former **Monsanto** engineer, has been named director of manufacturing for the new $10,000,000 mine and phosphate plant at Georgetown Canyon, near Soda Springs, Idaho, to be under construction next Spring.

* * *

LeRoy Rau has been appointed to handle the sales of the complete line of chemicals of the agricultural chemical division of **Stauffer Chemical Company's** Midwest territory, it has been announced by **Porter Williams,** regional manager. Mr. Rau will make his headquarters at the Omaha office of Stauffer and cover the western North Dakota, South Dakota, Nebraska, southeast Wyoming and northeast Colorado sales regions.

Stauffer's Richmond, Cal. plant has recently added to its technical staff **Richard W. Davis,** a chemist, and **Fred Davenport,** a chemical engineer.

* * *

Dan K. Corell has been promoted by **Nitrogen Division,** Allied Chemical,

John W. Hall, who succeeds the late George E. Petitt at Potash Company of America. He is vice-president-sales, a director and a member of the executive committee. He joined them in 1950 coming from Worthan Bag, where he was Eastern sales manager.

Harold C. Ihde, who has been made assistant sales manager—agricultural chemicals for Spencer Chemical whom he joined in 1946.

to the post of field representative in charge of sales of fertilizer manufacturing materials in the state of North Carolina.

Mr. Corell has been with Nitrogen Division since 1952, assigned to sales in the Midwest. Prior to this he was with **Swift & Co.**, for four years in sales work and as a production supervisor in the company's fertilizer plants.

* * *

Dr. Leslie G. Boatright has joined **Escambia Bay Chemical,** it was announced by **A. N. Wohlwend,** director of commercial development.

He is located at the company headquarters, 261 Madison Avenue, New York City, where he will devote his full time to the activities of the commercial development department.

Dr. Boatright joins Escambia Bay from **Jefferson Chemical Company** where he was manager of market development. Prior to this, he was research chemist with **American Cyanamid** in their Stamford Research Laboratory.

* * *

L. B. Angel, president of the **Polk County Fertilizer Company,** Haines City, Florida, was elected president of the Florida Agricultural Research Institute at its annual meeting held in Miami Beach. Forty-five fertilizer and chemical companies in the state comprise the membership of this organization.

* * *

Dr. A. F. Camp will retire as vice-director of **U. of Florida's** Citrus Experiment Station December 31 after 20 years in 33 years serving Florida Agriculture citrus research and will be succeeded by **Dr. Herman J. Reitz,** station horticulturist.

* * *

St. Regis Paper Company announces several personnel changes in the Eastern and Midwestern districts of its multiwall packaging division.

W. H. Versfelt, Jr., and **W. T. Orr** have been named regional sales managers in the Eastern district and will have their headquarters at the New York office. Mr. Versfelt, who was formerly located in Baltimore, will supervise branch offices at Ocala, Florida; Atlanta, Georgia; Baltimore and part of New York metropolitan sales. Mr. Orr will supervise the branch offices at Allentown, Pennsylvania; Buffalo, New York; and Boston, Massachusetts; and part of New York metropolitan sales.

H. W. Walker has been named regional sales manager of the eastern area of the Midwestern district, consisting of Detroit, Cleveland, Pittsburgh, Cincinnati, and Louisville, with headquarters in Chicago. Mr. Walker was previously regional sales manager of the Texas-Oklahoma-Arkansas area with headquarters at Dallas, Texas.

L. E. Gjovig has been named manager of engineering for the consolidated Eastern district of the multiwall packaging division, with headquarters at the New York office.

W. A. Harris has been named sales supervisor for the Chicago area with headquarters at the Chicago office.

R. P. Quinlan has been transferred from metropolitan sales in New York to the post of branch manager at Louisville, Kentucky, in the Midwestern district.

C. E. Freeman has been named branch manager in Dallas. Mr. Freeman was previously branch manager of the St. Louis office.

D. H. Hundley has been named branch manager in St. Louis, succeeding Mr. Freeman. Mr. Hundley was previously branch manager of the Louisville office.

* * *

Atlas Powder Company has appointed **Dixon C. Van Winkle** to the newly-created post of field sales manager for its chemicals division. Mr. Van Winkle, who has been manager of the firm's New York chemicals sales office, now will make his headquarters in the Wilmington general offices.

According to **Edward J. Massaglia,** the chemicals division's general

Left, Ray C. Smith, made manager of domestic sales for Sinclair Chemicals. He joined them in 1947. Right, Robert C. Sweeney who is now manager of market development. He joined that department in 1952, after extensive experience elsewhere.

Max D. Kirkland, right, New Jersey Extension Service Farm Radio-TV Editor, Rutgers University, was presented the American Association of Agricultural College Editors—National Plant Food Institute Agricultural Communications Award at a special luncheon ceremony at Pennsylvania State University. Louis H. Wilson, secretary and director of information for the Institute, presented Kirkland with a scroll signed by the national judges. He also received a check for $500 to be used for advanced professional training in agricultural communications.

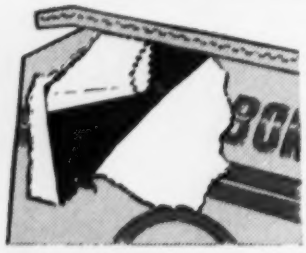
William W. Wilson, Jr., who has been named manager of terminals for Commercial Solvents petrochemicals division. He joined them in 1936. Right, R. T. Thompson, who has joined their crop chemicals sales organization in the Southeast, covering Georgia and Alabama.

F. T. Nielsson, who has been made development section supervisor for the plant food division of International Minerals & Chemical. He has been technical director for Royster, and a project leader at TVA.

John P. Porter who has been made sales supervisor for Southern Nitrogen and will assist in the selection, training and supervision of sales personnel. He was for 21 years with Royster, and is a vice president of the Georgia Plant Food Educational Society.

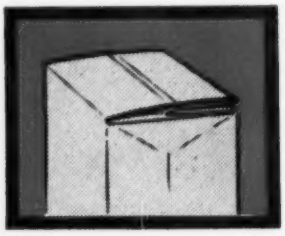
New Developments at A&S

THE TILTED VALVE BAG



This new closure was developed by one of our customers to prevent sifting of fine materials, and is now offered on standard A & S bags without upcharge. The Tilted Valve is a must for the fertilizer and rock products industries, which have long been seeking a multiwall bag combining an automatic closure with a positive, sift-proof seal.

THE ARKTITE BAG

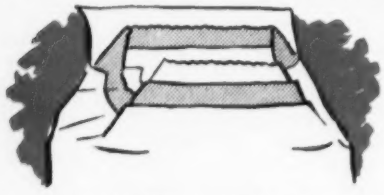


The new A & S Arktite Bag is not only sift-proof and tamper-proof, but also capable of standing upright on packing lines and shelves. It has thermoplastic seals throughout and liners of paper, film or foil.

THE ZIP-TOP MULTIWALL BAG

Already a favorite with multiwall users from coast to coast, the A & S Zip-Top is typical of the trend-setting features you find on our bags. This new easy-opening construction is available on any A & S multiwall at no extra cost.

THE STEP-FLEX BAG



A new multiwall bag soon to go into production. It is triple-sealed top *and* bottom with the unique Step-Flex closure, forming a sift-proof barrier against product loss or contamination. This new closure provides three multiwall layers, staggered and pressure-glued both ways in overlapping fashion.

OTHER POPULAR A & S BAGS

SUPER-RUFF — non-slip bags
LAMO-PAK — moisture barrier bags
LOCK-RITE — sealed valves
DUK-PAK — sheds water

To get the whole A & S bag story — particularly as it applies to your own products — we suggest that you write directly to Arkell & Smiths, Packaging Division, Canajoharie, New York.

ARKELL AND SMITHS

Executive Offices: 500 Fifth Ave., New York 36

Manufacturing Plants at:
Canajoharie, N. Y. • Wellsburg, W. Va.
Mobile, Ala. • Hudson Falls, N. Y.

"The Oldest Name in Paper Bags"®

Get the jump on your formulation problems

THE type of nitrogen you use and your methods of ammoniation both reduce your costs. And they help improve quality, condition and performance.

That's why it may pay to take a fresh look at your formulation now. Many have discovered that Sohio's complete solutions line and know-how can cut future costs.

With Sohiogen solutions, you take your pick of chemical and physical characteristics, total nitrogen content and free ammonia. And you get a selection of supplemental nitrogen sources to make grade, including condition-improving urea.

This means extra flexibility in formulation . . . extra cost-cutting possibilities.

What's more, Sohio's technical services are always available . . . plus the free cost-analysis service to help you do the job most profitably.

So this fall, call the man from Sohio. Have him suggest ways to cut formulation costs.

. . . we're serious about SERVICE at Sohio

SOHIO

SOHIO CHEMICAL COMPANY

FT. AMANDA RD. • P. O. BOX 628 • LIMA, OHIO

Scott Mulvaney Ray Ferguson

Four **Bemis Bro. Bag Company** sales executives have recently been assigned new duties.

R. V. Scott, manager of the Chicago general sales division, will attend the fall session of the Advanced Management Course at Harvard Business School. Following this session, Mr. Scott will be appointed to a new executive position within the company.

W. F. Mulvaney, supervisor of multiwall bag sales, will succeed Mr. Scott as manager at Chicago. Mr. Mulvaney has been with Bemis since 1939.

W. J. Ray, supervisor of textile bag sales, will succeed Mr. Mulvaney as supervisor of multiwall bag sales. Mr. Ray joined Bemis at their Indianapolis plant in 1933.

C. L. Ferguson will assume the responsibilities of textile bag sales supervisor, while continuing as supervisor of waterproof bag sales. Mr. Ferguson joined Bemis at their St. Louis Bag Factory in 1922.

F. L. Munger, vice-presdient in charge of sales of **Kraft Bag Corporation,** announces the appointment of **Joseph J. McDermott** to the sales staff. He will represent the company in Metropolitan Chicago, Northern Illinois and in Michigan, operating out of Kraft Bag Corporation's Chicago office. Joe McDermott, who has more than 20 years experience in the bag business, was previously associated with **Fulton Bag & Cotton Mills,** in the Chicago area.

* * *

Dr. Eric Winters, former head of Agronomy and Soils work is now associate director of the Tennessee Agricultural Experiment Station, Knoxville.

* * *

Dr. Lee E. Loveless has been made a group leader in the research department of Monsanto Chemical Company's inorganic chemicals division. He will conduct work in a group studying plant and animal nutrition, which will remain at Dayton for the present, although it will be moved to St. Louis upon completion of the division's new research facilities early next year.

* * *

Stewart E. Danby has been appointed district representative by the **Koehring Company** of Milwaukee according to a recent announcement by **R. E. Burton,** assistant sales manager for the construction equipment manufacturer. He will represent as well **C. S. Johnson Company,** Koehring subsidiary, in North and South Dakota, Nebraska, Iowa, Colorado, Southern Wyoming, Minnesota, Kansas, and Western Missouri.

* * *

William A. Scheurer, executive vice president, Exact Weight Scale Co.,

C. Tom Nixon who was appointed assistant secretary at a recent meeting of the Board of Ashcraft-Wilkinson Company, Atlanta. H. Wayne Tyson was made assistant treasurer.

manager for operations, the new field sales function will permit closer coordination of the company's 10 chemicals sales offices located in various parts of the country.

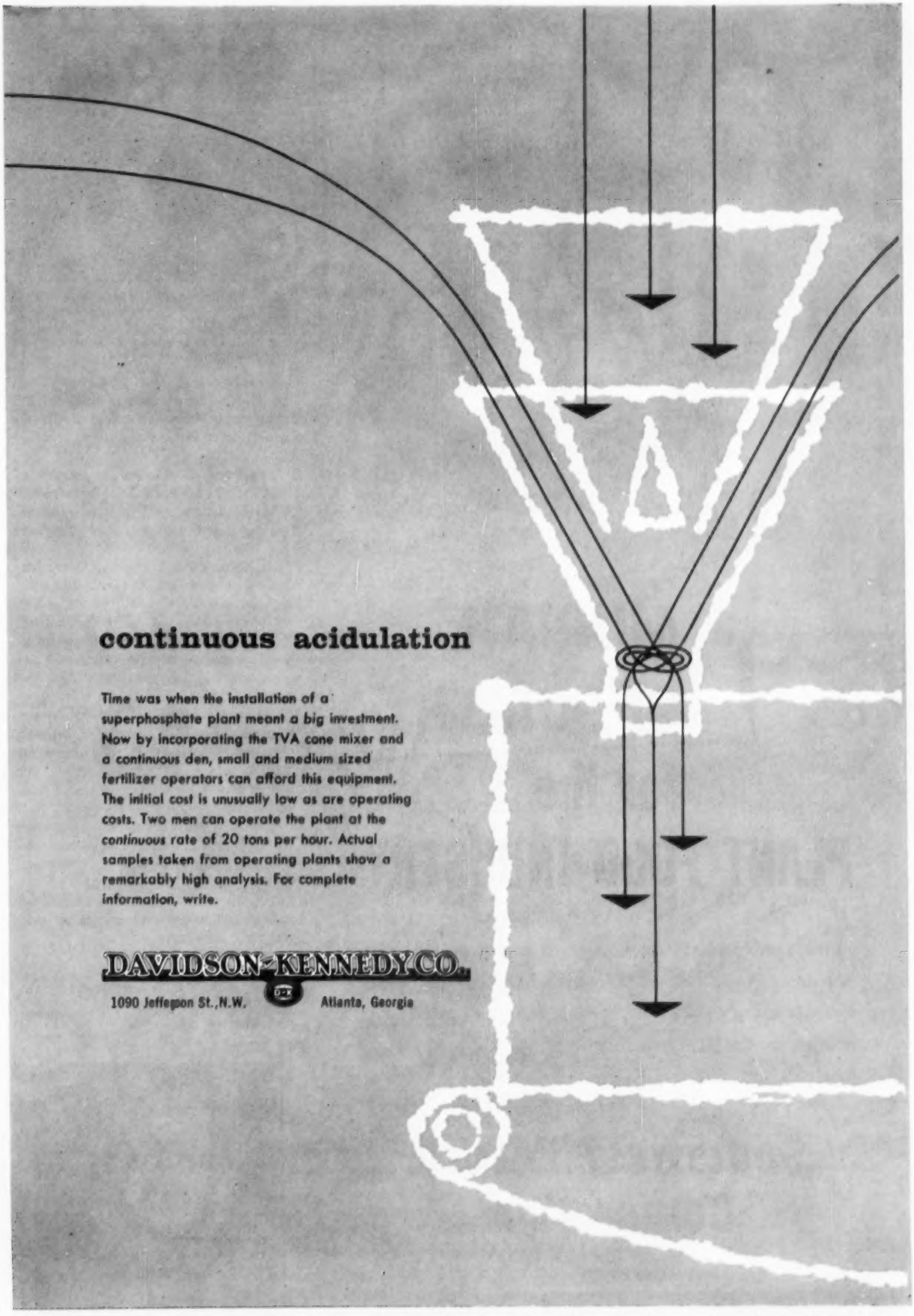
Other major objectives of the change, he said, include better integration of marketing programs, improved servicing of national as well as local accounts, and more effective recruitment and training of chemical sales personnel.

Mr. Van Winkle joined Atlas in 1952. Succeeding him as manager of the New York office will be **Henry C. S. Swab,** now technical representative in Atlas' San Francisco chemicals sales office. **Edward J. Costello,** who has been handling West Coast technical correspondence in the Wilmington general offices, replaces Mr. Swab in San Francisco.

* * *

Fulton Bag & Cotton Mills, Atlanta, has announced a number of appointments: **Eugene B. DuBois** becomes general sales manager, from assistant manager of Minneapolis branch. **G. Richard Cross,** former salesman in the Minnesota area becomes sales manager of the bag division. **Peter H. Walmsley** has been made manager of the New Orleans branch from assistant there. **Albert J. Reinberg** has succeeded to the post of Minneapolis branch assistant, from assistant in Kansas City. **James A. Mundie** is now account executive, bag division, New York office from manager of New Orleans multiwall bag department. **Charles A. Anderson, Jr.,** has been assigned the post of sales representative in Oklahoma City. **James W. Cox** is in the Dallas branch sales department.

Du Bois Cross Walmsley Reinberg Mundie


continuous acidulation
Time was when the installation of a superphosphate plant meant a big investment. Now by incorporating the TVA cone mixer and a continuous den, small and medium sized fertilizer operators can afford this equipment. The initial cost is unusually low as are operating costs. Two men can operate the plant at the continuous rate of 20 tons per hour. Actual samples taken from operating plants show a remarkably high analysis. For complete information, write.
DAVIDSON-KENNEDY CO.
1090 Jefferson St., N.W. Atlanta, Georgia

Ask About Davidson-Kennedy's Pay-As You-Depreciate Plan For Financing New Equipment

HIGH-K

MURIATE OF POTASH for the PLANT FOOD INDUSTRY

THIS symbol stands for high-grade coarse and uniform Muriate of Potash (60% K_2O minimum). Southwest Potash Corporation provides a dependable supply of HIGH-K* Muriate for the plant food industry.

*Trade Mark

Southwest Potash Corporation

61 BROADWAY • NEW YORK 6, N. Y.

A. E. Gibson, who has assumed his duties as fertilizer production manager for Lone Star Phosphate and Texas Farm Porducts Co., Nacogdoches, Texas. He has been in the field 10 years, with such concerns as Smith-Douglass and Darling.

Columbus, Ohio, has been appointed to the advisory committee to the director, **National Bureau of Standards,** for a three-year term.

* * *

Anthony E. Cascino, director of marketing, **International Minerals & Chemical Corporation,** has announced the appointment of three marketing executives.

Heading advertising and sales promotion is **Frank J. O'Neill,** who will be responsible for the coordination of advertising and sales promotion for the corporation's six divisions as well as for the development and administration of programs for the company as a whole.

Named manager of product development is **Henry E. Wessel,** whose activities will be aimed at the development of new uses for old products and the creation of new products.

Emanuel Heimberg has moved up to manager of market analysis, responsible for the corporation's activities involving determination of market potentials, sales patterns, and short- and long-term company and industry forecasts.

Allen Carlson has been appointed territorial manager for Standard Products Division of Stephens-Adamson Mfg. Co., Aurora, Ill., for the territory comprising Minnesota, Iowa, North and South Dakota, and Montana. His home office will be located in the Flour Exchange Building, 310 4th Ave., S., Minneapolis, Minn.

U. S. Reg. Trade Mark

DOLOXIDE

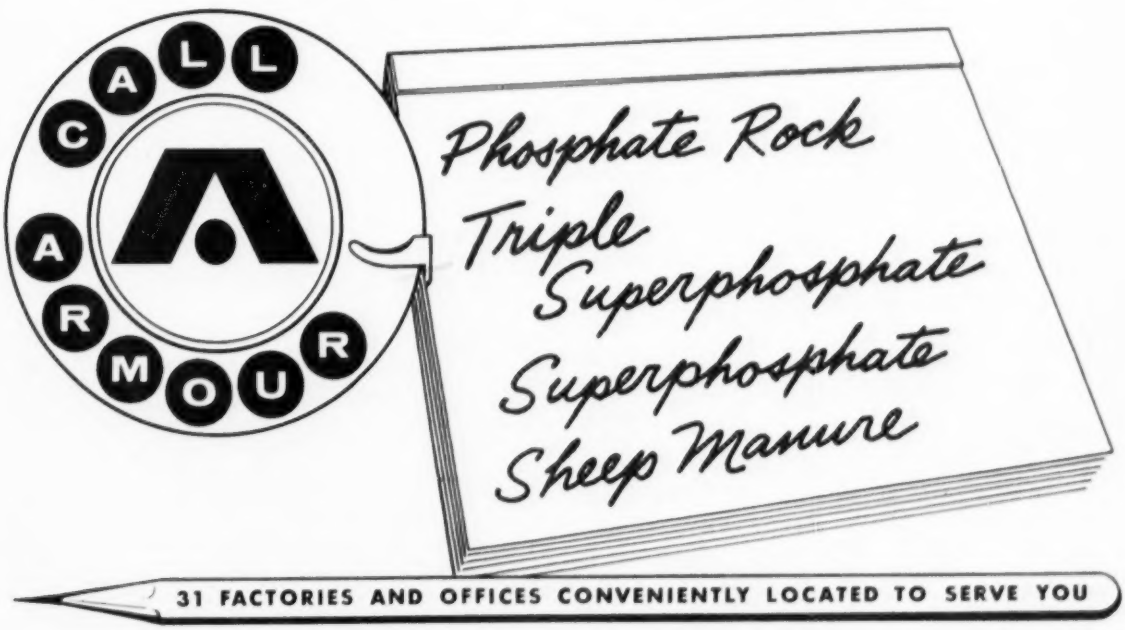
Pulverized Magnesium Calcium Oxides

For . . .
conditioning regular and granulated fertilizer.

Used . . .
by all major fertilizer plants.

Write . . .
us the analysis that is giving you trouble and we will try to help you.

THE MOORES LIME CO. Springfield, Ohio



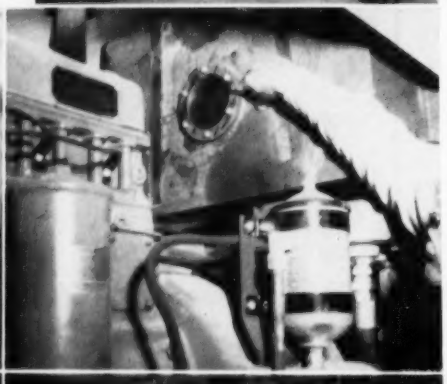
ARMOUR FERTILIZER WORKS
General Office, P.O. Box 1685, Atlanta 1, Georgia

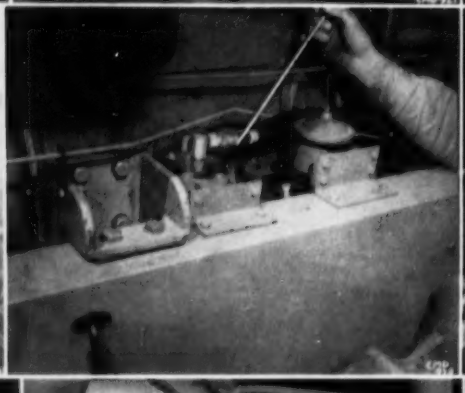
PREVENTIVE MAINTENANCE

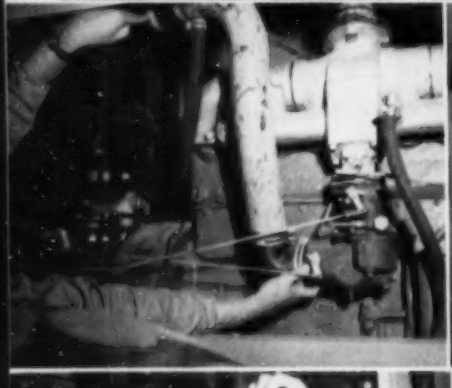
GETS MORE OUT OF

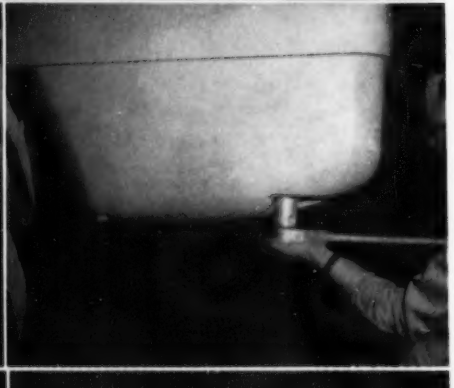
TRACTOR SHOVELS

Material and photographs: courtesy of Clark Equipment Co., Benton Harbor, Mich.









Fast handling of large quantities of raw materials is becoming increasingly important in profitable operation of fertilizer plants. Emphasis on tractor shovels as important components of the materials handling system within the manufacturing operation requires that more attention be paid to proper maintenance of the vehicles.

Dollars-and-cents logic makes clear that the cheapest way to get the most out of the equipment is to give these rugged machines the same care any craftsman gives fine tools. It's true that it costs money to spend a few minutes daily making sure that the machine will continue to do its work well, but maintenance doesn't cost anywhere near as much money as it saves.

Most fertilizer plant mechanics do carry out the most obvious maintenance operations from time to time: They usually check occasionally to see that the radiator doesn't get clogged with dust and they try to keep the crankcase oil level where it belongs.

But the man responsible for plant operations should make sure that each vehicle operator and each maintenance man knows what to look for, where to find it and when to carry out the various maintenance operations. A check list based upon manufacturer suggestions and individual field operations is the easiest way to have the job done right.

DAILY CHECK

Daily inspection should be made either at the end of each eight-hour shift or at the beginning, whichever is most convenient. In general, it's best to run the daily check at the end of the shift so that in the event extra work is required, it can be done before the machine is needed for another eight hours' duty.

The following items, based upon recommendations for maintenance of Michigan 175-A Tractor Shovels, are typical of those that should **always** be carried out daily or at eight-hour intervals if the machine is operated more than one shift a day:

Check Engine Oil Level. Add manufacturer-specified oil to keep the level at the "full" mark. The machine should be parked fairly level and the engine turned off when the check is made.

Clean and Refill the Oil-Bath Air Cleaner. Tremendous amounts of dust and grit are drawn into the unit during a day's work. Dirt can ruin rings, pistons and con rod bearings if the air cleaner is full of sludge. Clogged air cleaners also increase fuel consumption and lower power output.

Check Radiator Water or Antifreeze. This operation can prevent damage resulting from overheated engines and torque converters. (In the Michigan, the radiator also cools the torque converter.) Use water with a low mineral content. It's also a good idea to use corrosion inhibitors made of alternate discs of magnesium and copper. (These rods protect by allowing the magnesium to corrode instead of copper or iron radiator and engine surfaces.)

Add Fuel. Simple as it is, this operation is sometimes forgotten and a machine runs out of gas on the job. Gasoline of 75 octane minimum or No. 2 diesel fuel should be used, and fuel cans and drums should be free of scale and dirt.

Check Transmission and Torque Converter Oil Level. Add manufacturer-specified transmission oil if required. These components share a common oil supply. Oil is added at the upper left side of the torque converter until the level rises to the transmission check plug.

Check Hydraulic Oil Supply. The machine should be level and the bucket should be on the ground during the check. Use only high quality, heavy duty hydraulic fluid.

Check Battery Liquid Level. Only water with low mineral content (preferably distilled water, if availagle) should be used. Battery terminals should be checked for tightness and any corrosion wiped off. A light coating of grease will prevent corrosion of terminals.

Daily maintenance should also include a quick visual inspection of the machine to note obvious conditions requiring correction. Operation of lights and other electrical equipment should be checked, too.

FIFTY-HOUR INSPECTION

Maintenance required at 50-hour intervals requires more time than the brief daily inspection, but is probably the most important operation in prevention of abnormal wear. These components should be inspected.

Crankcase: Drain and refill with the proper lubricant specified by the manufacturer. The machine should be level and the engine should be at normal operating temperature when the oil is drained. (Hot, agitated oil carries out more sludge.) **Never** flush with kerosene; it provides insufficient lubrication and kerosene remaining in the engine dilutes the oil.

Engine Oil Filter: Remove the sludged filter and replace it with a new filter. Always use new gaskets and run the engine a few minutes after filter installation to make sure there are no oil leaks.

Differentials: Both front and rear differentials should be checked for the proper amounts of lubricant. Add SAE 90 extreme pressure gear lube if required.

Planetary Gears: Rotate the rear wheels until the filler plug is at the top and the check plug slightly below the center of the hub. Remove the plugs with the proper size wrench.

Master Brake Cylinder: Add only a heavy-duty hydraulic fluid. It's wise to check the air vent and remove any accumulated dirt.

Steering Gear Housing: Check the level and add only SAE 90 straight

←——KEY TO PICTURES

1—Ability to move vast quantities of raw materials quickly make tractor shovels important components of fertilizer plant operations. This tractor shovel is used by Armour Fertilizer Works, Atlanta, Ga., to load a bucket-equipped tractor. Preventive maintenance insures that the machines produce maximum output.

2—Tractor Shovels, like this one owned by an Indiana fertilizer plant, are designed to work under rugged conditions, but frequent cleaning of air and oil filters is essential to prevent grit from reaching engine cylinder walls and bearings. Clogged filters increase operating costs and slash the working life of a machine.

3—Cleaning oil-bath air filter daily (or oftener in dusty operations) is essential protection for engine rings, pistons and bearings.

4—Daily inspection of the boom and bucket hydraulic system assures proper operation of the tractor shovel. Transparent window makes inspection easy.

5—Planetary drive at wheels increases the torque and absorbs considerable strain. Consequently the lubricant should be checked frequently to avoid unnecessary wear. Only two plugs must be opened to do the job quickly.

6—Dipstick on oil separator tank makes inspection of this vital brake system component a simple job. The tank should be checked daily, drained and refilled every 500 hours and removed and flushed every 2,000 hours.

7—Inexpensive protection against transmission breakdowns is provided by the torque converter-transmission oil system filter. Periodic replacement assures that the oil will stay clean between oil changes.

8—Abrasive dirt can damage the hose between the air cleaner an intake manifold. A broken hose will admit dusty air that can seriously damage an engine.

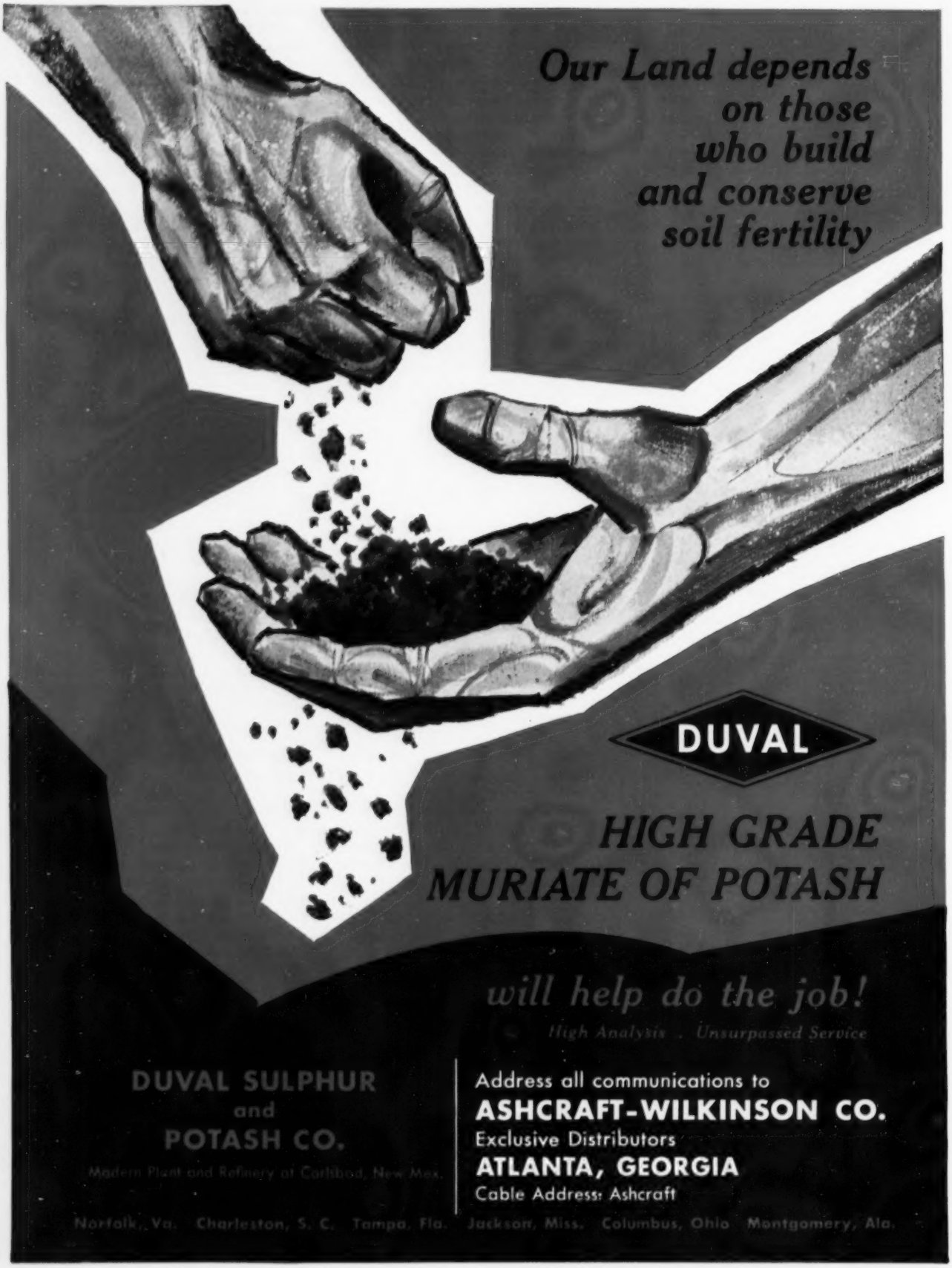
9—Vibration is an enemy of bolted connections. Operation of machine is more efficient if time is taken occasionally to tighten universal bolts.

10—Operation of machine is safer and more efficient if time is taken occasionally to tighten counterweight bolts.

11—Removing the sludged oil filter.

12—All work on the bucket hydraulic system should be done with the bucket on the ground or on a solid support. Thus, the operator will not be injured by a falling bucket in case a line gives away or someone bumps the controls.

13—Bucket stops can wear down after several years, and should be inspected to prevent unnecessary damage to hydraulic cylinders.


Our Land depends
on those
who build
and conserve
soil fertility
DUVAL
HIGH GRADE
MURIATE OF POTASH
will help do the job!
High Analysis . Unsurpassed Service
DUVAL SULPHUR
and
POTASH CO.
Modern Plant and Refinery at Carlsbad, New Mex.
Address all communications to
ASHCRAFT-WILKINSON CO.
Exclusive Distributors
ATLANTA, GEORGIA
Cable Address: Ashcraft
Norfolk, Va. Charleston, S. C. Tampa, Fla. Jackson, Miss. Columbus, Ohio Montgomery, Ala.

nineral oil.

Generator: Add a few drops of SAE 10W oil to cups at each end of the armature shaft. This also is a good time to run a visual check of brush and commutator condition.

Oil Separator Tank: This component of the vacuum brake system is located at the rear left of the engine compartment. Check the oil level and add more if needed, following the manufacturer's recommendations.

OTHER PERIODIC MAINTENANCE

Additional maintenance should be carried out at longer intervals. Most convenient intervals usually are 500, 1,000 and 2,000 hours, but requirements will vary with field conditions. A good general rule is that signs of abnormal wear or heavy dirt accumulation mean that the operation should be done more often.

The 500-hour check should include these operations:

Lubricate Propeller Shafts and Universal Joints. Use a low-pressure hand gun to avoid blowing the seals and apply grease to the fittings sparingly. An old instruction worth repeating is "Clean the grease fitting first." Whatever goes into the fitting comes out on machined surfaces, and a mechanic who pumps accumulated dirt through the fitting is asking for trouble.

Drain and Refill Torque Converter. The unit should be drained hot if possible. The transmission sump should be removed and swabbed clean. The sump screen should be cleaned. It is important to use new gaskets in replacing the sump to avoid leakage.

Remove and Replace Torque Converter Filter. Replacing this filter periodically is extremely important in avoiding major repairs: A filter costs a few dollars, but it can avert the need of a transmission overhaul. After the filter is replaced and the torque converter filled with oil, the machine should be run a few minutes at a fast idle and the oil level rechecked. Usually it is necessary to add a small amount of oil.

Clean Fuel Filters. Filters on gasoline models should be cleaned and replaced. Both primary and secondary fuel system filters on diesels should be replaced with new cartridges.

Drain Oil Separator Tank. The tank should be drained and refilled with the proper grade of hydraulic fluid.

At 1,000-hour intervals, front and rear wheel hubs and differentials should be drained and refilled with SAE 90 extreme pressure gear lube. The Hydrovac mechanism also should be lubricated, removing the plug on the front of the unit and filling to plug level.

The oil separator tank should be removed at 2,000 hours and it and its lines flushed with gasoline. The boom and bucket hydraulic system should also be drained and refilled at 2,000 hours—or oftener in extremely dusty operation. This avoids abnormal wear of cylinders, pistons and packing.

Several maintenance operations should be carried out at intervals that are best determined by experience. The same basic principle of all preventive maintenance applies: Fix it as soon as it needs it; nothing is gained by postponing a simple job.

It is surprising how often counterweights have fallen off only because no one ever thought to put a wrench to the bolts. Axle tie-down bolts and engine mounting bolts also are loosened by vibration over a long period of time. Hydraulic lines to bucket and boom cylinders should be checked for abrasion occasionally, especially when work is done in gravel.

Fan belt tension, of course, needs occasional adjustment. The air cleaner screen should be rinsed in solvent when it appears to be quite dirty. The rubber hose between the air filter and manifold should be checked for abrasive damage or leakage.

An important, but simple inspection is that of the bucket stops. After years of use, the stops sometimes will wear down, allowing the piston to advance too far and damage the cylinder head. Whenever work is done on the hydraulic system, the bucket should be on the ground or on a rigid support to prevent injury to mechanics if a hose should give way or someone accidentally touches the controls.

In establishing any preventive maintenance program, remember that owners' manuals contain most information you need. Factory men have put much thought into the manuals—and they should be used. If any questions aren't answered in the manuals, don't hesitate to write or telephone the equipment distributor. His people know that the best work of design engineers will get a black eye if the maintenance man in the field doesn't give the machine the care it deserves.

CHANGES

The D. M. Weatherly Company, Industrial Engineers and Builders, has moved to new quarters, 80 Eleventh Street, N.E., Atlanta. The telephone number remains TRinity 5-7986.

• • •

Geigy Chemical Corp., subsidiary of the 200 year old Swiss concern, has moved its headquarters to Saw Mill River Road, Ardsley, New York. The agricultural division is one of those that had already moved to the new location.

• • •

The General Scientific Equipment Company, safety equipment, have moved to larger quarters. New plant and offices are at 7516 Limekiln Pike, Philadelphia 50, Pa.

• • •

Dorr-Oliver Expands Field Engineering

Dorr-Oliver has expanded its field engineering division as a function of the newly established sales services department. With the expansion, field engineers have been assigned to territorial areas generally coinciding with the D-O Sales Divisions.

Field engineering area supervisors are now located in the headquarters of the various domestic industrial and sanitary division offices. This arrangement will provide close contact between Sales and Field Engineering and more complete, effective coverage of customer installations.

William G. Sutcliffe, continuing as manager of field engineering division, is aided by George T. Vickers, assistant manager. Mr. Vickers is, in addition, temporarily supervising the Eastern field engineering territory from Stamford, Conn.

William F. Werner, Jr., has been named to supervise the Southeastern territory from Atlanta, Ga., and J. Otto Veach is resident supervisor of the South Central territory at Dallas, Texas. The Central field engineering territory is supervised from Chicago, Ill., by Robert L. Rowell, Jr.; and R. L. Meeks, at Oakland, Cal., continues supervision of the Western field engineering territory.

SAFETY PAYS

TRIPLE SUPER-PHOSPHATE

TC
TENNESSEE CORPORATION

"Maximum" means more in ammoniation when you choose U.S. Phosphoric Products as your source for Triple Superphosphate. It means more, too, in terms of service—the kind of prompt, dependable deliveries on which you can base your production—as it has meant for 30 years.

Call in your Bradley & Baker representative to help you plan your shipments of superior quality U.S. Phosphoric Products Triple Superphosphate in whatever grade you require.

U.S. PHOSPHORIC PRODUCTS
Division
TENNESSEE CORPORATION
Tampa, Florida

Sales agents: BRADLEY & BAKER • 155 EAST 44th STREET • NEW YORK 17, N. Y.

District Sales Offices:
ATLANTA, GA. • INDIANAPOLIS, IND. • ST. LOUIS, MO.
NORFOLK, VA. • HOUSTON, TEX.

Safety—KEY WORD AT THE MFA PLANT IN JOPLIN

Safety was the keyword at Joplin recently when over 300 people composed of employees of the M. F. A. Plant Foods Division and their families joined together to celebrate 510 working days without a lost-time accident.

Loryn Sapp, M. F. A. Mutual insurance representative, presented the Joplin plant with a plaque for their safety record. An award from the National Safety Council was also presented to the plant. Sapp reminded the group that safety is a family affair which begins in the home and carries on through the working day.

Fred V. Heinkel, president of M. F. A., pointed out in a speech to the group that he was happy to see them assembled on a joyous occasion such as this, instead of mourning the loss of a fellow worker because of carelessness on the job. He explained that farmers have a big investment in their fertilizer business and that it behooves everyone of us to do our best to protect the combined interests of employees and farmers.

Employees' families were given a guided tour through the plant so that they could see where their husbands and fathers worked. The guides pointed out features that have kept accidents from happening to the workers.

The Joplin plant was completed in the fall of 1955. Running at full production it turns out over 70,000 tons of high analysis fertilizer annually. The plant is an ammonium phosphate type geared to produce a pellet type water soluble fertilizer. Grades produced are 14-14-14, 14-28-14, 12-36-12, 10-20-20, 11-48-0, 16-20-0 and other analyses will be added as the demand grows.

Many built-in safety features including screens and guard rails helps the plant to keep their accident ratio down. A safety director with committee heads in each department makes weekly checks through the plant and urges suggestions from employees . . . the keynote is "let's stop the accidents before they happen."

In addition to the built-in safety features, the plant makes heavy use of signs posted at possible danger spots. Safety Director, Emmett Sutherland, estimates that they have 300 signs located throughout the plant. Safety meetings are also held periodically by the employees.

Safety Committee lineup at the Joplin plant are Wm. Tinney, A. J. Wagner, plant manager Walter Horn, Emmett Sutherland, Ben Maglaughlin and Jack Wright.

Lion Wins Safety Awards

Lion Oil Company, a Division of Monsanto Chemical Company, has earned an Award of Honor from the National Safety Council for accident-prevention records set by Lion employes during 1955.

Lion's company-wide accident-frequency rate in 1955 was 68% better than the standard established by the National Safety Council for the top honor, and the company's accident-severity rate was 92% better than the Council's par.

Felix N. Williams, vice president of Monsanto's manufacturing operations, speaking before representatives of all Lion's operating departments, pointed out that the company's accident-prevention record has been steadily improving. He reviewed that in 1952, when the Lion organization won its first company-wide Award of Honor, the accident-frequency rate within the company was 2.13 lost-time accidents per million-man-hours of work, whereas in 1955 this frequency rate had dropped to 1.75. He stated that five plants or departments of Lion achieved perfect records for the

Fertilizer Safety Section Program For Chicago Meeting

October 22, 1956, Monday

2:00 OPENING REMARKS
General Chairman—Curtis A. Cox
Virginia-Carolina Chemical

2:10 ELECTION OF 1956-57 OFFICERS

2:20 "SAFETY IS TOP MANAGEMENT'S CONCERN
H. B. Devinny, Dir. Indus. Relations
Davison Chemical Company

3:00 "THE SAFETY DIRECTOR IN A MULTIPLE UNIT ORGANIZATION"
J. Lauren Shopen
Consumer Co-op Association

3:40 DISCUSSION

3:50 "THE SAFETY COMMITTEE IN THE PLANT"
C. S. Griffith
Virginia-Carolina Chemical

4:25 DISCUSSION

October 23, 1956, Tuesday

Presiding: President elect, Fertilizer Section

12:00 LUNCHEON—Century Room, LaSalle Hotel
"SAFETY PROGRAM FOR THE AVERAGE PLANT"
H. S. Baucom
North Carolina Industrial Commission

2:00 ANNOUNCEMENTS

2:10 "FLORIDA COOPERATES—NOT REGULATES WORK WITH YOUR STATE DEPARTMENT"
C. E. Hooks, Jr.
Florida Industrial Commission

2:40 DISCUSSION

2:50 "HOW ELECTRICAL ACCIDENTS OCCUR AND HOW THEY CAN BE PREVENTED"
Charles J. DeWitt
Liberty Mutual Insurance Company

3:35 DISCUSSION

3:50 "HOW TO CONDUCT A SAFETY COMMITTEE MEETING"
Glen F. Griffen
National Safety Council

year 1955 and, as result, a number of other awards have been earned by segments of the organization. He named these, which are yet to be presented, as including six from the National Safety Council, three from the Joseph A. Holmes Safety Association, and one from the Manufacturing Chemists Association.

In addition to the plaque presented, Lion will receive from the National Safety Council a flag symbolizing the two Awards of Honor which have been won by the company. The banner will be flown beneath the American flag atop the Lion Oil building.

8-Year Safety Record For American Cyanamid

For eight years and an accumulated 601,708 man-hours, the employees of the Hamilton, Ohio, plant of American Cyanamid Company have worked with a perfect safety record.

The plant, which has been in operation at Hamilton since 1945, presently produces 75 tons daily of sulfuric acid with capacity currently being increased.

In achieving their eight years of accident-free operation, Hamilton employees have received awards from the National Safety Council, state and local safety citations, Manufacturing Chemists' Association Certificates of Achievement, and the Company Award of Merit and Cyanamid Safety Award.

Du Pont Spending $4,000,000 On Safety

With employees already several times safer at work than at home, the Du Pont Company is spending well over $4,000,000 this year, plus a far greater but incalculable cost in effort, in a determined endeavor to have each and every one go a whole year without injury. This is the direct expense; the full cost may run 10 to 15 times as much—or more.

Du Pont's over-all injury rate is exceptionally low; the safety program is intensive and continuous. The company has its sights set on a perfect record. That would mean 100,000 people (including those on government-owned plants) getting along on the job without anybody being hurt.

That a goal of "no injuries" is entirely realistic and can be achieved is borne out by the fact that 70 of the company's plants and laboratories operated throughout the year 1955 without a single disabling injury.

LEAF-RUST RESISTANCE BRED INTO WHEAT

Leaf-rust resistance found in a wild grass has been bred into wheat, gaining an old objective.

After years of cooperative research by USDA and the Missouri experiment station, a potent gene for leaf-rust resistance has been fixed into Chinese Spring variety of common wheat. The gene gives resistance to all 22 rust races for which it has been tested.

Very few varieties of common wheat are highly resistant to any of the 22 rust races. Some of the related wild grasses, however, are practically immune to this disease. One of these wild grasses is **Aegilops umbellulata,** a native of the Mediterranean areas.

That grass, however, has only 2 sets of 7 chromosomes—the tiny rod-like carriers of heredity found in plant cells—whereas common wheat has 6 sets of 7. Because of this difference, scientists have been unable to make a direct cross between these two species.

ARS plant breeder E. R. Sears brought the distant relatives together by indirect means (Step 1). He crossed the wild grass, which has 2 sets of chromosomes, with emmer, a feed-grain crop that's related to wheat but has 4 sets of chromosomes. This produced a hybrid with 3 sets of chromosomes. That's one-half the number of chromosomes in common wheat.

This hybrid plant was highly sterile, so Sears treated it with the drug colchicine and caused a doubling of the chromosome number (Step 2). In this way he obtained a fully fertile plant, part wild grass and part emmer, which had 42 chromosomes, the same number that common wheat has.

Sears then proceeded to cross this synthetic plant with the Chinese Spring common wheat, producing a 3-way hybrid (Step 3).

Although Sears' doubled grass-emmer hybrid had the same number of chromosomes as common wheat, only 14 of them—those from emmer —were closely enough related to wheat chromosomes to pair with them in a cross. The 7 chromosomes from the grass were different from any present in the wheat. This led to difficulties when it was time for the 3-way hybrid to form reproductive cells.

In any ordinary plant, each different chromosome occurs in pairs, except during certain reproductive stages. In the formation of reproductive cells the chromosome number is reduced in an orderly way from 42 to 21, each cell receiving one of each kind of chromosome. In Sears' 3-way hybrid, however, 14 of the 42 chromosomes were without mates—the 7 from the grass ancestor and 7 from Chinese Spring wheat. Instead of behaving regularly, these 14 could only pass at random to one reproductive cell or another during cell division. As a result some cells received no grass chromosomes and others got as many as 6.

Sears backcrossed these grass-emmer-wheat hybrids to Chinese Spring wheat (Step 4) and studied the chromosomes of those off-spring that were resistant to leaf rust. In the second backcross generation, a 43-chromosome plant was obtained which was resistant to leaf rust but in most ways resembled Chinese Spring wheat. Unlike Chinese Spring wheat, however, it had certain undesirable characteristics—particularly, low fertility and lack of vigor. Sears found that one of the chromosomes, and only one in this plant, was from the grass **Aegilops.** Offspring of the plant that had the full 21 pairs of wheat chromosomes plus this one **Aegilops** chromosome were resistant, whereas all others were fully susceptible. In addition to the rust resistance factor, however, the undesirable characteristics mentioned unfortunately were also tied up with that one **Aegilops** chromosome.

To overcome the undesirable features, Sears X-rayed the unique plants before flowering and applied the pollen that was subsequently formed to normal wheat plants (Step 5). This X-raying had caused individual chromosomes to break up and exchange genes (heredity units). X-raying frequently causes such exchanges.

Of the 6,091 offspring produced following X-raying, at least 17 had retained the rust resistance but appeared to have **only part** of the grass chromosome carrying resistance. One plant had so few of the undesirable grass features that it had apparently picked up only a very small section from the middle of the grass chromosome—the gene for rust resistance and little else. This one had near immunity to all 22 races with which it was tested and no other evident character from the grass.

HOW UNION MULTIWALLS BUILD MORE BUSINESS FOR THE FERTILIZER INDUSTRY

"For 10 years I've bought fertilizer only in Multiwalls"

Raymond Rossback, farmer, Davidsonville, Maryland.

"See how correct fertilizing pays off?" says Mr. Rossback. "This is Southern Maryland cigarette tobacco, Type 32, of fine texture and quality. I fertilize heavily to grow it, from 1,000 to 1,500 lbs. per acre. I use 80-lb. Multiwalls, hand-pouring the fertilizer into the spreader machine, then out to the fields. That's the easiest and most practical way to do the job."

Union Bag information program promotes fertilizer

Mr. Rossback took over his property in 1911, when it was practically a wilderness. Neighbors said, "You won't last long." They were wrong; good management and the proper use of fertilizer, plus hard work, won out. To help farmers like Mr. Rossback, Union stresses those themes in a countrywide educational program.

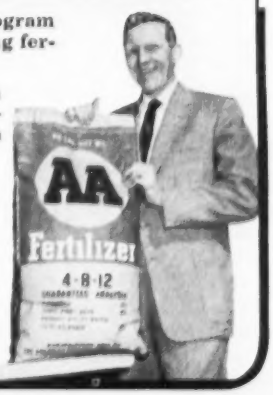
Union's information program helps build sound and expanding farm markets for fertilizer distributors. Union's Multiwalls, used by top fertilizer companies, lighten farm chores and create satisfied farm customers. The strong, attractive Multiwall pictured below was designed and made by Union for The American Agricultural Chemical Company.

"Union's educational program should aid farmers in using fertilizer more efficiently.

Union Multiwalls have an excellent performance record with us. We use them in quantity."

Mr. John A. Layton, Superintendent, Baltimore Plant, American Agricultural Chemical Company, Baltimore 24, Maryland.

The American Agricultural Chemical Company is one of the country's leading fertilizer manufacturers, distributing AGRICO, AA Fertilizers and 18% Normal Superphosphate.



UNION Multiwall Bags

union camp

UNION BAG-CAMP PAPER Corporation · 233 BROADWAY, NEW YORK 7, N. Y.

Random NOTES & QUOTES

Nut grass haulers are being checked in Little Rock. Plant Board inspectors found two contractors hauling dirt full of nut-grass and selling it as top soil. Now you can sell nut-grass-infested top soil down there only if the householder signs a document saying he knows of the infestation. After all, there are folks who have given up growing grass, and are glad of anything reasonably green that comes up on their lawns!

●

Reduce upward! Confusion must reign in many an Iowa breast these days. Iowa State say fertilizer applications should be reduced this year because of dry conditions. To which John A. Miller, CCA agronomist replies that this actually points up the need for most farmers to increase their use of plant food.

Iowa State was talking about heavy hands on the distributor, of which—Mr. Miller says—there are all too few. The negative having been overemphasized in Mr. Miller's opinion, he suggests they emphasize the positive—"Let's try to get 100 pounds of hill fertilizer and 40 pounds of additional N on each acre of Iowa corn.

To which our readers who operate out there will respond, we feel sure, with hearty cheers.

●

Soil overcoats have been developed by USDA out in Yuma, Arizona, according to a bulletin from the Farm Journal. They sprayed vegetable beds with a mixture of one pound of carbon black to three gallons of water. The idea is that a black shirt is warmer on a hot day than a white one. So why not use the principle on crops?

They did and it increased daylight soil temperatures by seven degrees. The cost—only about $15 an acre.

Now we wish someone would figure a spray to keep your editor seven degrees cooler these hot Summer days.

●

What Commercial Fertilizer Magazine has contended for some time—that the ammonia oversupply is not bad, but security for the immediate future when we'll have a lot more mouths to feed than we do today—was brought out into the open lately.

E. D. Crittenden, Nitrogen Division's research director, called it "a boon, like money in the bank, or social security." He pointed out that it takes seven acres of land to feed one person, and our population is expending at the rate of two to three million a year. More fertilizer used will increase the acre-yield and solve this problem as it develops.

●

Great gamma! New York State AES, knowing full well that gamma radiations are harmful to plants, nevertheless is fooling around with them, to see what hereditary changes may take place, which might turn out to be of practical value.

●

USDA's research service reports that secondary and trace-nutrients are running about 27% above the 1953-54 level, mostly in use for special crops or soil conditions. While the South Atlantic still leads in total fertilizer tonnage, East North Central with less tonnage leads in consumption of primary nutrients—South Atlantic, 6,081,000 tons of which 1,362,000 tons were primary; East North Central, 4,517,000 tons of which 1,446,000 were primary nutrients.

●

New York AES points out a statistic we had not noticed before: Statistically, fresh garden peas are on their way out. Look at the figures: Planted to peas for the fresh market, 1939, 100,000 acres; 1954, 7,000 acres. Planted to peas for freezing, the acreage leaped in the same period from 27,000 to 102,000 acres. Obviously, Madame Housewife ain't gonna shell no peas if she can help it!

●

Sampling caution is publicized in Virginia, where VPI agronomists stress the importance of soil sampling, but warn that the samples must be truly representative of the plot involved. That may sound obvious—but not to a county agent.

●

N-pen. A gent named Richard Davis out in Kansas, wrote his nickname in fertilizer (60 pounds of N to the acre) on an otherwise unfertilized field. When the crop came up—lo the aviators passing over knew that Dick lived there, in technicolor.

●

Not enough says University of Tennessee agronomist, W. L. Parks, when he hears bragging about the good job Tennessee farmers have done in the past 25 years toward improving the soil. He told the American Farm Research Convention why, with figures that proved that "it will be necessary to lower unit costs still more for good profits from these crops" he said. The crops mentioned especially were tobacco, corn and alfalfa.

●

Major from minor. South Carolina AES research has demonstrated over a three year period that you can get 24 to 54 more pounds of cotton lint per acre depending on how you apply boron and manganese to the soil. They have it written in Circular 104: "Minor Elements for Field Crops."

●

Eggshell grinding will be taken up in a big way if an English concern has its way. George Forbat & Co. want to license a US concern to sell a way of grinding eggshells to make them a source of calcium carbonate for—among other things—fertilizer . . . or as they spell it over there fertiliser, with an s. In case you're interested, write them at 143 Cannon St. London, E.C. 4—or get an outline of their proposal from the Investment Development Division, Bureau of Foreign Commerce, U.S. Department of Commerce, Washington 25, D.C. You'll have to write mighty small to get all that on an envelope.

●

White man crazy. From a recent issue of Cyanagrams, published by American Cyanamid Co., we gleaned the following:

White Man—He Crazy

The Oklahoma **Farmer-Stockman,** recently sponsored a contest for the best essays suggested by

All steamed up by John Ott's fascinating presentation of time-lapse photography at the NPFI meeting, one of the gals went home to give her gardenias a shot of iron. They were yellow-leaved, sickly—and strictly bloomless. The iron worked fast, making the leaves a fine, rich green. And within four weeks blooms appeared, as you can see.

two pictures—one showing a dilapidated house and the other a field badly eroded. First prize went to a Cherokee Indian, who wrote:

"Both pictures show white man crazy. Make big tepee. Plow hill. Water wash. Wind blow soil. Grass all gone, papoose too. No chuckaway. No pig, no corn, no hay, no cow, no pony. Indian no plow land. Keep grass. Buffalo eat. Indian eat buffalo. Hide make tepee, moccasins too. Indian no make terrace. No build dam. No give a damn. All time eat. No hunt job. No hitchhike. No ask relief. Great Spirit make grass. Indian no waste anything. White man crazy."

Link-Belt Brochure Shows Wide Utility

Link-Belt has published a brochure which may be boiled down to this sentence "Our equipment plants a vital part in producing almost everything America eats, wears or uses. It should be on your office shelf because it tells of their research facilities and discusses many of their standard products as well. In the back is a complete list of their distributors, world wide. Write for a copy to Link-Belt Company, Prudential Plaza, Chicago 1, Ill.

Fluor Bulletin On Nitric Acid Plants

A new four-page, two-color bulletin describes efficient, low-cost production of nitric acid. Typical operating requirements for the manufacture of nitric acid are included, along with a process description and simplified flow diagram are included. For more information write or call: Advertising Department, The Fluor Corporation, Ltd., 2500 S. Atlantic Blvd., Los Angeles 22, California.

D-O Bulletin On Pan Filter

Dorr-Oliver Incorporated announces the availability of a new, two-page, two-color leaflet entitled "Dorr-Oliver Traveling Pan Filter." This leaflet describes the unique features, operation, advantages and sizes of this new type filter. Also included are a typical layout diagram and several equipment and installation photographs.

Dorr-Oliver claims major advantages are: flexible capacity, gravity feed and sharp filtrate separation. Available in five sizes with filtration areas ranging from 65 to 195 sq. ft., the TP Filter has found acceptance in twelve countries throughout the world. Copies of the leaflet are available at no obligation from Dorr-Oliver, Barry Place, Stamford, Conn.

Patterson Announces New Grinding Mill

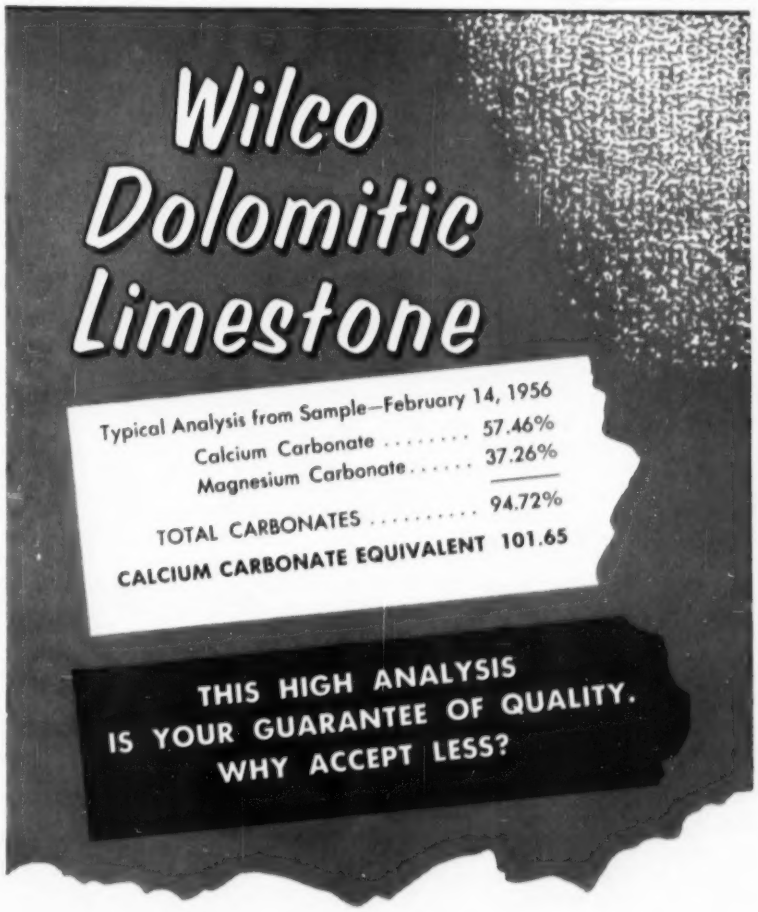
A radically improved ball and pebble mill, stated to bring a new standard of precision and efficiency in fine grinding is announced by The Patterson Foundry & Machine Company in a detailed brochure, just off the press.

Copies of the colorful new FUTURA Brochure No. B-562 are obtainable free on request to this publication or direct to The Patterson Foundry and Machine Company, East Liverpool, Ohio, U.S.A.

St. Regis Has New "Squared-off" Package

A "squared-off" package which permits better palletizing and improves the appearance of the container is now possible with the new "pallet bag" developed by St. Regis Paper Company.

The length of the pasted bag is shortened for improved pallet loading and the size of the gussets is increased to obtain the same volume.



WILLINGHAM-LITTLE STONE COMPANY

DOLOMITIC WILCO LIMESTONE

1323 Fulton National Bank Building

Atlanta, Georgia

Phone JAckson 3-5591

serving the south's fertilizer industry for more than 40 years

WILSON DAM DEMONSTRATION ATTRACTS 450 PEOPLE

More than 450 test-demonstration farm family members and agricultural college and TVA agriculturists met recently at Wilson Dam, Ala.

All members of the Tennessee Valley Assn. of Test-Demonstration Farm Families, the group represents 101 counties in the seven Tennessee Valley states. A tour of the phosphorous and nitrate fertilizer research and manufacturing facilities of TVA and Wilson Dam concluded the two-day session.

Dr. Harry Curtis, member of the TVA board of directors, welcomed the test-farm group. He traced the successful program incorporated by TVA which develops high-analysis fertilizers through research.

Selected farm families, nominated by their neighbors, then apply the new fertilizers, for TVA studies to test their effectiveness, he told the meeting.

"The 21-year-old test-demonstration program has been a huge success, both for what it has done for farmers' land and for the farmers themselves. Test-demonstration farmers are now recognized as leaders everywhere. They are on the boards of the FHA, SCS, ASC, and other county agricultural organizations."

"The test-demonstration program that showed people the results of using high-analysis fertilizers has been of tremendous value to the community and to the fertilizer industry," Dr. Curtis continued. "More complicated, high-analysis fertilizers are coming from TVA, all backed up with technical research results.

"Now one challenge is to get this information to test-demonstration farm families where the most can be made of this research. And since only farmers can test these fertilizers adequately, test-demonstration farmers will play a large part in that," Dr. Curtis explained.

"Test-demonstration farmers use only a thirtieth of TVA's total fertilizer output. The reason for this is that we inherited equipment added during the war for making phosphorus and nitrate."

Farm demonstration families were conceived in the 30s when the Tennessee Valley took over the fertilizer and munitions site at Muscle Shoals. Funds were allocated to set up studies of fertilizers and soil conservation measures.

Dr. H. A. Morgan, then president of the University of Tennessee, and chairman of the Board of Directors, TVA, set up the program in 1934.

TVA then organized a system under the direction of J. C. McAmis of Tennessee and the test-demonstration program was begun. Agricultural extension services of all state colleges in the Tennessee Valley development were incorporated in the new plan.

New fertilizers are now developed in the TVA lab and then sent to experiment station greenhouses. Experimental fields are used to test the effectiveness of the new fertilizer and in turn sold to the test-demonstration farmer at 40 per cent of retail cost.

Since the early beginning 35,000 farmers have participated in the test program, according to L. T. Strickland, agriculture extension leader, TVA, in Tennessee.

Each family averages five years in the program and 25 per cent are retained for longer periods if necessary he said.

Some 35 states have been active in the test demonstration program since the TVA was organized.

TVA Adjusts Fertilizer Price

The Tennessee Valley Authority announced that delivered costs of its ammonium nitrate fertilizer are being adjusted to provide more uniform price incentives to dealers and farmers taking part in TVA's distributor demonstration program.

In the case of ammonium nitrate, the distributors participating in the program agree to sell the product only to farmers who will use the product for the educational purposes specified. The distributors also conduct educational activities to promote the desired uses of fertilizer.

Some 72 distributors having about 4,000 retail outlets are thus cooperating with the land-grant colleges in 35 states toward the TVA objectives of introducing and developing markets for better fertilizers, lowering the cost of plant nutrients to the farmers, and demonstrating improved fertilization practices.

The production and use of ammonium nitrate as a fertilizer has greatly expanded since 1943 when TVA converted its plant from munitions manufacture and began to introduce the product to farmers. Ammonium nitrate now has become the country's leading solid nitrogen fertilizer. The TVA product supplied about 3.5 percent of the fertilizer nitrogen used in the United States in the fiscal year 1955.

Most of the commercial nitrogen fertilizer currently is used on cash crops. Since 1951, TVA has encouraged use of TVA ammonium nitrate on fall and winter grazing and cover crops and other pasture and forage not generally fertilized. The practice results in a quick early growth, inceasing soil protection and grazing.

As an incentive to participation in these educational activities, TVA said that farmers, in general, can now expect the delivered cost of ammonium nitrate to be about $5.00 to $6.50 below commercial ammonium nitrate.

INDUSTRY CALENDAR

Date	Organization	Place	City
Oct. 15-17	Nat'l Nitrogen Solution	City Auditorium	Sioux City, Ia.
Oct. 16-18	Fert. Ind. Round Table	Shoreham Hotel	Washington, D.C.
Oct. 18-19	Control Officials Assn.	Shoreham Hotel	Washington, D.C.
Oct. 21-22	Fert. Safety Section	LaSalle	Chicago, Ill.
Oct. 25	Middle West Soil	Sherman	Chicago, Ill.
Nov. 2	Sou. Soil Conf.	Atlanta Biltmore	Atlanta, Ga.
Nov. 7-9	Pac. NW Plant Food	Harrison Hot Springs	Harrison Hot Springs, B.C.
Nov. 7-9	Agric. Ammonia Inst.	Atlanta Biltmore	Atlanta, Ga.
Nov. 11-13	Calif. Fert. Assn.	Del Coronado	Coronado, Cal.
Nov. 27-28	Indiana Fert. Conf.	Memorial Union Bldg. Perdue Univ.	Lafayette, Ind.
Nov. 28	Okla. Fert. Dealers Conf.	Okla. A&M College	Stillwater, Okla.
Nov. 29	Okla. Sales & Crops Conf.	Okla. A&M College	Stillwater, Okla.
Dec. 10-12	No. Central Weed	Sherman Hotel	Chicago, Ill.
		1957	
Jan. 8-9	Texas Fert. Conf.	MSC	
Jan. 23-25	Sou. Weed Conf.	Bon Aire	Augusta, Ga.
Feb. 14-15	Middle West Soil	Edgewater Beach	Chicago, Ill.
July 10-14	Plant Food Producers of Eastern Canada	Manoir Richelieu	Murray Bay
July 17-19	SW Fert. Conf.	Galvez Hotel	Galveston, Texas

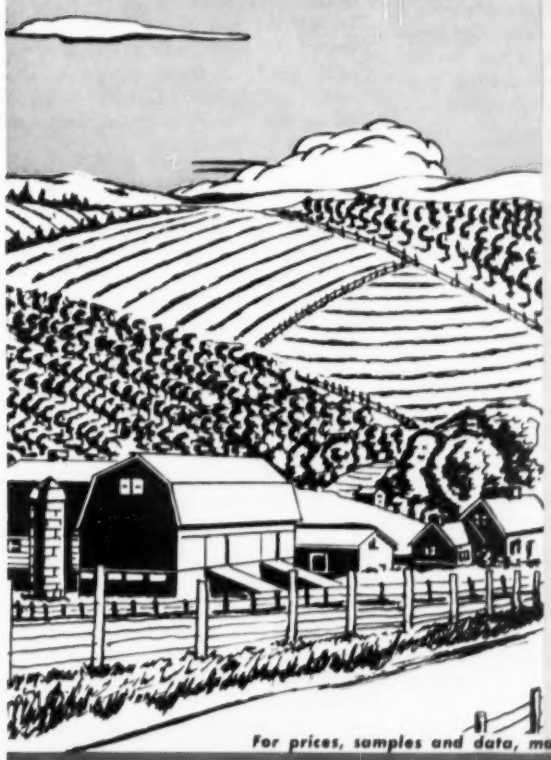
DUST MIXERS—FORMULATORS—CUSTOM SPRAYERS—GROWERS

TENNESSEE CORPORATION

From mining through research and chemical processing to profitable farming.

Why do disease control schedules call for finishing off with Copper?

TENNESSEE TRI-BASIC COPPER SULFATE



Because research, and the experience of successful growers shows that copper fungicides are the best disease protection and insurance available with which to send their crops to market or storage.

Check These Money Making FACTS:

- √ **Increased yields of number one quality. The type increase that produces greater profits.**
- √ **Improved storage and keeping qualities. It is the yield of number one's out of storage that pays dividends.**
- √ **Improved eating and flavor properties. Don't jeopardize your future and most important—the consumer—through the sale of "flat," watery produce.**
- √ **Economical to use. Compare the overall cost of TRI-BASIC against the organics.**
- √ **Easy to apply. Spray or dust. Compatible with other pesticides.**
- √ **No residue tolerance restrictions. Use as recommended. Insure against seizure or condemnation.**

FOR THE BEST IN COPPER GET TENNESSEE TRI-BASIC COPPER SULPHATE

For prices, samples and data, make request on your firm's letterhead.

TENNESSEE CORPORATION

617-29 Grant Building, Atlanta, Georgia

CF Staff-Tabulated TONNAGE REPORTS

FERTILIZER TONNAGE REPORT (in equivalent short tons) Compiled by Cooperating State Control Officials and Tabulated by COMMERCIAL FERTILIZER Staff

	July		June		May	Jan.-Feb.-Mar. Quar.		July thru Dec.		Year (July-June)	
State	1956	1955	1956	1955	1956	1956	1955	1955	1954	1954-55	1953-54
Alabama	.....	14,887[1]	55,202	50,362	155,509	347,660	433,390	167,372	272,068	1,114,238	1,074,892
Arkansas	.....	9,292[1]	25,691	21,126	40,577	141,981	134,588	60,294	59,997	330,776	366,225
Georgia	46,437	51,173	147,230	115,109	280,937	221,862	328,956	250,968	225,083	1,273,445	1,361,254
Kentucky	.....	.....	.....	.....	.....	168,371	172,883	88,119	91,386	524,488	577,929
Louisiana	7,852	6,888	19,883	20,215	33,722	93,469	123,971	59,345	78,067	310,848	325,218
Missouri	.....	11,433[1]	23,382	18,720	85,055	235,254	189,351	360,211	268,257	682,690	756,457
North Carolina	.....	12,417[1]	88,223	72,664	235,304	681,897	825,492	225,182	264,475	1,830,633	1,815,572
Oklahoma	.....	3,423[1]	6,086	5,028	13,915	31,884	35,770	69,542	58,406	122,305	144,367
South Carolina	12,764	11,355	33,262	37,991	88,324	452,619	521,836	119,947	132,604	928,715	936,558
Tennessee	24,536	25,862	108,890	25,862	121,941	50,736	63,463	136,925	167,383	523,349	523,303
Texas	24,199	20,311	49,681	32,273	65,024	180,802	214,792	193,704	212,885	584,269	560,381
California (reports submitted quarterly)						280,853	283,155	361,615	318,270	922,127	830,327
Virginia (reports submitted quarterly)						.....	287,367[1]	.....	159,185[1]	795,770	780,931
Indiana (reports submitted semi-annually)								242,530	284,994	1,158,960	1,180,091
New Jersey (reports submitted semi-annually)								.....	53,830[1]	.....	289,614[1]
Washington (reports submitted semi-annually)								48,749	58,162	182,348[1]	*
TOTAL	115,788	115,589	557,530	399,350	1,120,308	2,887,388	3,327,647	2,384,503	2,486,900	11,102,613	11,233,505

..... (not yet reported) *Not compiled [1] Omitted from column total to allow comparison with some period of current year.

MARKETS

ORGANICS: Fertilizer organics continue in a state of good balance of demand against supply with movement to users in good volume and producers comfortably sold for months in advance. Current prices of Nitrogenous Tankage range from $3.00 to $4.00 per unit of Ammonia, bulk, f.o.b. production points with 25c per unit rise for September through December.

Activated Sludge prices continue at $2.75 per unit of Ammonia and 50c per unit of APA, bulk, f.o.b. Chicago through August with 20c per unit Ammonia rise effective September. Sewage Sludge from the Southwest is currently indicated at $3.00 per unit of Nitrogen and 50c per unit of APA, bulk.

CASTOR POMACE: Contracts have been made for shipment through October but on account of the high price of beans no supplies are offered November forward. Producers are heavily sold against production through October at $35.00 per ton, bagged, fo..b. Northeastern production point. Production is at a very low level.

DRIED BLOOD: Unground Blood is indicated at around $4.75 per unit Ammonia bagged f.o.b. Chicago and about $4.50 in the New York market.

POTASH: Present indications, according to contract commitments, are that for the new season sales will be greater than during the past season. Shipments are in seasonal volume at present.

GROUND COTTON BUR ASH: Demand continues excellent. Supplies are available for shipment prompt through June. Current analyses vary from 38% to 42% K20 which makes a delivered cost approximately that of Domestic Sulphate of Potash.

SUPERPHOSPHATE: Shipments recently have been somewhat off from the quantity shipped in the same period last season and demand is quiet. Prices appear to be firm as a result of increased cost of production.

PHOSPHATE ROCK: Output of Phosphate Rock is tuned with the current demand and production has been curtailed during recent months.

NITRATE OF SODA: No change in price has been indicated and demand is entirely seasonal.

SULPHATE OF AMMONIA: Production was off during the period of the steel strike and there has been no change in the price situation. Stocks continue in long position.

GENERAL: Manufacturing activity on the part of fertilizer manufacturers is at reduced levels but it is expected that activity will increase, particularly in the Florida area, with the next thirty (30) days. Stock piles are being built preparatory to the opening of the seasons in various parts of the country.

TVA Book On Control For Ammonia Synthesis

TVA has published a 446 page book, Bulletin No. 2, entitled "Analytical Control for Ammonia Synthesis," compiled by J. R. Hall, G. D. Barnes and E. D. Frederick. It covers in detail analytical procedures used in their synthetic ammonia plant, and has been published as the result of many requests for the information.

The bulletin may be purchased from the TVA office of Chemical Engineering, Wilson Dam, Ala., at $4.25 per copy. Check or money order should be made payable to Tennessee Valley Authority, and should accompany requests.

29 Firms Sign For TVA

TVA has renegotiated fertilizer distribution contracts with 29 private companies and co-operatives operating through 72 wholesale outlets in 35 states.

Under the agreements, the distributors participate in the program to introduce new TVA fertilizers and encourage their proper use, encourage farmers to adopt fertilization practices, to use TVA materials to encourage production and proper use of lower cost, higher analysis fertilizers, and to use TVA materials in promising new processes.

DON'T BE HALF - BEST

Selling fertilizer in today's competitive market depends upon more than ingredients and mixing.

Your bag and bag design are *also* an important part of your packaged product. A good bag design can tell the story—at a glance, pictorially—of the benefits your product gives the buyer.

This is the standard we set for our bag designs at Percy Kent.

SINCE 1885

MULTIWALLS • COTTONS • BURLAPS

PERCY KENT BAG COMPANY, INC.

KANSAS CITY • MINNEAPOLIS • OKLAHOMA CITY
CHICAGO • BUFFALO • NEW YORK

Scratchboard drawing of our Kansas City plant . . . an excellent technique for bag printing. Do you like it?

STEDMAN

FERTILIZER PLANT EQUIPMENT

Established in 1834

All Steel Self-Contained Fertilizer Mixing and Bagging Units

Complete Granulating Plants

Batch Mixers—Dry Batching

Pan Mixers—Wet Mixing

Tailings Pulverizers—Swing Hammer and Cage Type

Dust Weigh Hoppers

Vibrating Screens

Acid Weigh Scales

Belt Conveyors—Stationary and Shuttle Types

Batching Systems

Bucket Elevators

Hoppers and Chutes

STEDMAN FOUNDRY & MACHINE COMPANY, INC.

Subsidiary of United Engineering and Foundry Company

General Office & Works: AURORA, INDIANA

OBITUARIES

William Leonard Bartlum, retired president Florida Agricultural Supply Co., Orlando, and formerly with Wilson-Toomer, died in Orlando August 2.

Norman Henry Eason, 56, with Monsanto and Lion Oil since 1946 after more than 20 years in fertilizer sales elsewhere, died suddenly in St. Louis August 8.

Frank N. Gladden with International Papers since 1932, died suddenly at his Los Angeles home July 26.

Cecil Guy Lawrence, 66, vice-president and plant manager at South Norfolk, Va., for Reliance Fertilizer, died July 15 in a Norfolk hospital after being stricken at work.

Carl L. Modesitt, 69, principal of the spectacular but brief potash boom during World War I, died in Denver July 19.

Walter Carlton Preston, 62, with Trueman Fertilizer, Jacksonville for the past 22 years, died August 2 in Jacksonville.

Thomas Henry Wright, 80, chairman of the board, Acme Fertilizer, Wilmington, N. C., died at his home July 23 after a long illness.

Roland W. Smith, 47, sales representative for Chemical Packaging Corporation of Savannah, Georgia, died suddenly August 13, at his home in Richmond, Virginia.

OFF THE PRESS
IN SEPTEMBER
1956 YEARBOOK
COMMERCIAL FERTILIZER

EVANS METAL COMPANY
EVANS
EVANS
ATLANTA, GA.

For your lead requirements!

CHEMICAL AND ANTIMONIAL

sheet lead and lead pipe

Evans Metal Company

Box 97 Northside Station • ATLANTA, GA. • TRinity 6-4338

For Bagging **— CHI-ORGANIC —** *For Mixing*

(Chicago Activated Sludge)

"THE ALL-ORGANIC PLANT FOOD WITH THE BUILT-IN CONDITIONER"

"Contains more minor elements than any other organic."

CHICAGO FERTILIZER COMPANY

Exclusive Sales Representatives

ALEX. M. McIVER & SON

P. O. Box 155 Charleston, S.C. Tel 3-4828 - 29

NATIONAL CAL-MAG OXIDES
NOW IN TWO SCREEN SIZES

MgO 40.39 – CaO 58.07 – TNP 203.88
Superior for Dehydrating, Neutralizing, and Curing factors in the preparation of effective fertilizers.

PROMPT SHIPMENTS
Three railroads serve our Carey, Ohio, plant — assuring prompt delivery — everywhere.

WRITE FOR COMPLETE INFORMATION TODAY! Dept. CF

We Also Produce
DOLOMITIC HYDRATED LIME (165 TNP)
and
KILN DRIED RAW DOLOMITE (107 TNP)
Screened to size

The NATIONAL LIME and STONE CO.
General Offices • • • • • FINDLAY, OHIO

CROP CHEMICALS

North Central Weed Conference

The North Central Weed Control conference, the 13th annual meeting of the group, has been scheduled for December 10-12 at the Hotel Sherman, Chicago. The meeting attracts representatives of federal and state experiment stations and concerns involved in the manufacture and sale of herbicides. Several new sections have been added to the program format this year. Members have been asked to prepare papers.

Shell's Phosdrin Ready For Practical Tests

A new chemical insecticide that will allow a plant to repel insect attack will be available in limited quantities for late summer sales.

F. W. Hatch, Shell Chemical Corporation's Manager of agricultural chemical sales, described the product as an organic phosphate . . . trade-named Phosdrin. It was discovered by Shell Development Company and given experimental label acceptance by the Department of Agriculture for use against insects attacking certain fruit and vegetable crops, he said.

Phosdrin invades a plant's system, giving the plant its own built-in defense against insects. It will kill insects that either tap into the treated plant or come in contact with the insecticide. In field experiments, Phosdrin has proved lethal to insects that have developed a tolerance for certain older insecticides.

Like all phosphates, Phosdrin is highly toxic to man. All users of the product are being advised of its potential danger, the necessary safety precautions for its handling and its remedies in case of mishap.

One of Phosdrin's chief advantages, according to Hatch, it its rapid (one to three days) dissipation. The insecticide gives farmers and growers a weapon they can use against insects up to one to three days before harvest, he said. Within that time, Phosdrin will have killed the insects and the insecticide on the plant will have dropped below the temporary tolerance established by the Food and Drug Administration, for experimental sales.

Shell Chemical plans to have the product available in limited quantities for late summer and fall crops. It will be sold by formulating companies in emulsible, dust and granular forms.

Stauffer Quadruples VAPAM Facilities

Stauffer Chemical Company has completed an expansion to one of the units of its Chauncey, N. Y., plant which quadruples production capacity for sodium n-methyl dithiocarbamate, the essential ingredient in Vapam.

The Chauncey expansion was necessitated, according to Dan J. Keating, general manager of Stauffer's Agricultural Chemicals Division, by the increased field demand for Vapam in the Eastern part of the United States. Stauffer's distribution centers at Bayonne, N. J., Tampa, Fla., Houston, Texas, and Omaha, Nebraska, stock this soil fumigant for Eastern growers.

Stauffer's Western Division has manufactured Vapam at Richmond, Calif., for over a year. Distributing centers for the West are located at Berkeley and Vernon, California, and Portland, Oregon. An expansion of the Richmond plant was completed last Fall.

Vapam Described In New Leaflet

A six page leaflet which outlines the various methods by which Vapam soil sterilant may be used to destroy weeds, fungi, nematodes, and soil insects has just been published by Stauffer.

The leaflet details the types of pests which the water-soluble soil sterilant will control, and how it may be applied by hand, sprinkler, injection, plow sole and in irrigation waters on soils for preplant treatment of seed beds, potting soil, ornamentals, nursery stock, field crops, row crops, orchards, vineyards, turfs and lawns.

Copies are available without charge by writing to Stauffer Chemical Company, 380 Madison Avenue, New York City, or 636 California Street, San Francisco, Calif.

Cut Material Wastes and Handling Costs

with a **MARIETTA** STORAGE SYSTEM Designed to your needs

Inefficient storage and handling of bulk materials runs costs up and production down. Let Marietta help you turn this cost factor into a profitable operation with a storage and handling installation engineered to the job.

Adaptable Marietta concrete silos will handle storage of any material from lump coal to core sand, chemicals, fly ash and etc. Their pre-cast solid or Air Cell concrete stave construction is sturdy . . . durable . . . fireproof. Moisture-resistant interiors eliminate costly waste or spoilage. Marietta storage silos are built with an extra strength factor for mounting any type of intake, discharge or materials handling equipment.

Whether you require 1 or 40 units . . . a complete new system or an addition to your present capacity . . . it will pay you to consult Marietta.

DON'T FIGHT SHORTAGES
Use Marietta concrete stave silos.

Write for informative booklet on how Marietta plans, engineers and erects modern storage-handling systems for industry.

THE Marietta CONCRETE CORPORATION
Marietta, Ohio

BRANCH OFFICES: Baltimore 21, Md., Charlotte 6, N.C., Nashville, Tenn., Jamestown, N.Y.

'Round Table' Program Offers Wide Range of Topics

Another outstanding program has been announced for this year's Fertilizer Industry Round Table to be held at the Shoreham Hotel in Washington October 16-18. Registration will begin at 12:30 p.m. on October 16, according to Dr. Vincent Sauchelli, Chairman, and only registered persons will be allowed to attend the sessions.

These meetings are primarily for operating personnel; that is, men whose main interest is in the production phase of the fertilizer industry. The feature of the Round Table is free and open discussion among all participants.

Many industry members have urged that the Round Table be organized on a permanent basis, so that it can continue to afford the large group of engineers and other technical men in today's fertilizer industry their own means of exchanging among themselves ideas and other pertinent information. Discussion of this proposal is slated for the Business Session.

Here's the lineup for all sessions:

October 16-17-18, 1956
Hotel Shoreham, Washington, D.C.

First Session, October 16. Time 1:30-5:00 P.M.

Moderators: V. Sauchelli, H. L. Marshall; Sampling of Fertilizers and Materials, J. Archer, Int'l. Minerals & Chem. Co., D. Sanders, Swift Fertilizer Works; Automatic Dry Sampler: P. E. Cook, Denver Equipment Co.; Triple Super Analytical Study: H. L. Marshall, Olin-Mathieson Chem. Corp.; Statistical Quality Control: H. Replogle, Davison Chemical Company; Equipment for Analytical Laboratory: Robt. Piper. Demonstrations.

Second Session, October 17. Time 9:30-11:30 P.M.

Moderator: V. Sauchelli; Changing Technology in Granulation and Ammoniation: T. P. Hignett, T.V.A.; New Developments in Ammoniation and Granulation: E. Perrine, Nitrogen Div. Allied Chem. & Dye Corp.; Raw Materials in Processing Granulated Fertilizers: W. L. Hill, U.S.D.A., J. O. Hardesty, U.S.D.A.A.R.S.; Joe Sharp, Spencer Chemical Co.

Third Session, October 17. Time 1:30-5:00 P.M.

Moderators: H. L. Marshall, J. E. Reynolds; Sackett New Star Granulator: A. Spillman, Fertilizer Mfg. Cooperative; Flowrators and Flow Control: A. Behler, Fisher Porter Co.; Temperature Control in Granulation: Brown Instr. Div., Minn. Honeywell Reg. Co.; Feeders and Weigh Belts: Wallace & Tierman, Inc.; Electrical Automation: Warren Seiffe, Link Belt Co.; Instrumentation in Dryer Design: Louisville Dryer Co.; Use of Pulverizers in Granulation: Sturtevant Mill Co.

Fourth Session, October 18. Time 9:00 A.M.-12.

Moderators: J. E. Reynolds, V. Sauchelli; The Dorr Ammonium Phosphate Process: Mack Barber, Mo. Farmers Assoc., Plant Foods Div.; Davison Trenton Granulation Process: J. E. Reynolds, Davison Chem. Co., Div. W. R. Grace & Co.; Dust and Fume Control in Granulation Processes: Glen Rose, Davison Chem. Co., Div. W. R. Grace & Co.; Fans and Dust Cyclone Design: American Blower Corp.; Methods for Collecting Fumes and Dust Samples: J. Gaskill, Mine Safety Appliance Co.; Business Meeting.

Fifth Session, October 18. Time 1:30-5:00 P.M.

Moderators: V. Sauchelli, H. L. Marshall; Controlling Caking in Granulated Fertilizers: Edmund P. Hudson, Scottish Agric. Industries, Aberdeen, Scotland; Aids in Selecting Types and Principles: a. Counter Current Drying of Drying Straight Tube, Smith-Douglass Co., Inc.; b. Concurrent Drying with a Dehydromat: D. Leister, Renneburg & Sons; c. Concurrent Drying Straight Tube: C. B. Brown, The Hardinge Co.; Bags and Bagging—Panel Discussion: J. M. McDonald, Bemis Bros. Bag Co.; K. A. Arnold, St. Regis Paper Co.; W. Jacobi, Union Bag & Paper Corp.; O. W. McDuffie, International Paper Co.

Triangle Brand Copper Sulphate has been recognized as an effective agricultural chemical for more than sixty years. In sprays (where Bordeaux mixtures are the most reliable), **in dusts (if you prefer them)** and in fertilizers (for additional enrichment of the soil) Triangle Brand Copper Sulphate has proved itself worthy and dependable. Try these Triangle Brand forms of Copper Sulphates:

INSTANT (powder) for quick and efficient mixing or Bordeaux sprays.

SUPERFINE (snow), SMALL or LARGE CRYSTALS, all containing 25.2% metallic copper.

BASIC Copper Sulphate in powder form, containing 53% metallic copper.

Write for booklets that will help you solve your agricultural problems.

Control POND SCUM and ALGAE with Triangle Brand Copper Sulphate. Write today for information on how it can help you maintain healthy water conditions.

PHELPS DODGE REFINING CORP.
300 PARK AVE., NEW YORK 22, N.Y. • 5310 W. 66th STREET, CHICAGO 38, ILL.

PHELPS DODGE REFINING CORPORATION — NICHOLS CHEMICALS — NEW YORK, N.Y.

LEAD LINED EQUIPMENT

or

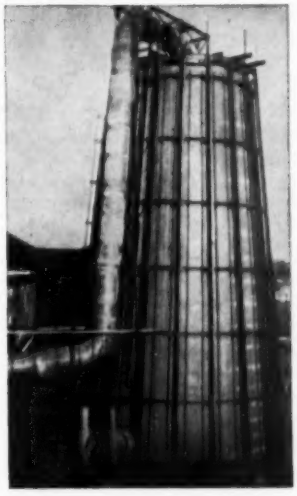
Construction

of

Complete

Acid

Plants



Southern Lead Burning Co.

ATLANTA 2, Ga.

P. O. Box 4627 Tel. WAlnut 2576

Specialists in

Magnesia for Agriculture

EMJEO (80/82% Magnesium Sulphate)
Calcined Brucite (fertilizer grade) 65% MgO

POTNIT

95% Nitrate of Potash) for Special Mixtures and Soluble Fertilizers
Other Fertilizer Materials

BERKSHIRE

BCI CHEMICALS

ISCO

Insecticides—

Fungicides

Mercury Compounds for Agricultural Use

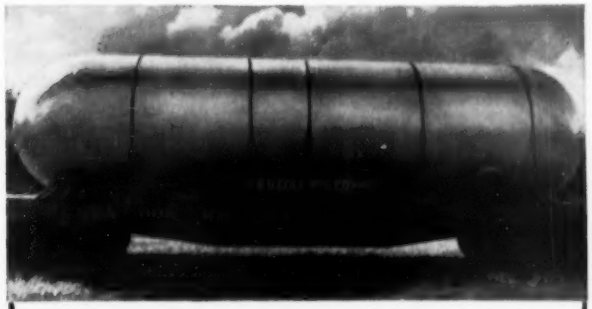
Dithiocarbamates

Ferrie—Zinc

EXPORT - IMPORT

BERKSHIRE CHEMICALS, INC.

GRAYBAR BUILDING
420 LEXINGTON AVENUE • NEW YORK 17
LExington 2-5959 • "BERKSKEM" New York
55 New Montgomery St. • San Francisco 5, Cal.
Philadelphia • Boston • Cleveland • Chicago



WELDED ALUMINUM TANKS

● Welded aluminum tanks for storage, pressure vessels and processing equipment built to ASME Code specifications to meet all insurance requirements; pure aluminum tanks for hydrogen peroxide storage or other purposes.

Conventional or special design tanks, shop built-up or field-erected, using flat, flanged and dished or hemispherical heads, can be built to your specifications. Over a century of experience (established 1854) in the fabrication of metal. Write for *Tank Talks*.

R. D. COLE MANUFACTURING CO. COLE NEWNAN, GEORGIA

Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

Established 1854

R. D. COLE MANUFACTURING CO.
NEWNAN, GEORGIA

Lancaster, Allwine & Rommel

Registered Patent Attorneys

Suite 482
815—15th STREET, N. W.
Washington 5, D.C.

Patent Practice before U. S. Patent Office. Validity and Infringement Investigations and Opinions.

Booklet and form "Evidence of Conception" forwarded upon request.

Serving the

FERTILIZER INDUSTRY

Fertilizer Equipment Sales Corp.

Designers — Engineers — Manufacturers of Fertilizer Machinery

Sales and engineering office:
P. O. Box 1968
130 Krog St., N. E.
Atlanta, Ga.
Phone JAckson 3-6615

Manufacturing plant:
P. O. Box 67
1641 Poland St.
New Orleans, La.
Phone Bywater 8373

Introduction of this entirely new Hyster Company Lift Truck series of 3000, 4000 and 5000 lb. capacity models on pneumatic tires proved a major attraction at The Material Handling Institute's Exposition of 1956. Styled by Dreyfuss, the new gasoline-powered Hyster 30, 40 and 50 reflect current automotive trends typified by compact, close to the ground silhouette, increased safety, automobile-like controls, greater operator comfort and faster speed of operation.

Cyanagrams Reports On Thimet Reactions

In the current issue of Cyanagrams, published by American Cyanamid, grower reactions to the use of Thimet are summed up thus: It eliminated 2 or 3 sprays. Insect control was excellent. Rain or shine they had protection without worry about missing sprays. Gave time to take care of other work. No heavy machinery to drag through fields. Both tops and roots of plants were thriftier.

Union-Camp Offers Cost Computer Kit

A handy new "Do-It-Yourself" packaging work kit, designed to help fertilizer manufacturers figure complete bagging costs, is now available at no charge from Union Bag-Camp Paper Corporation.

William F. Jacobi, director of Union's package engineering department, says that the kit contains tables for determining the labor costs per ton of material and per thousand bags at varying production rates. Also enclosed is a chart which figures the cost of multiwall bag closing materials (cotton thread, rayon thread and filter cord) as well as a bag cost comparison sheet.

Copies of the kit may be obtained by writing to: Package Engineering Department, Union Bag-Camp Paper Corporation, 233 Broadway, New York 7, N. Y.

Conservationists See Phillips Project

A group of 21 soil conservationists representing districts in Colorado, Kansas, Arkansas, and Oklahoma, attended a three-day Soil Conservation Service Range Workshop held Aug. 20-22, at Phillips Petroleum Company's Agricultural Demonstration Project near Foraker, in Osage County, Okla. Fred Renner, head of the U. S. Department of Agriculture's range conservation division, was to attend.

The conference will include detailed studies of range mapping procedures used by the Soil Conservation Service and the improved methods used to carry on range work.

The Phillips Agricultural Demonstration Project is located on a large Bluestem ranch in Osage County, Okla. It is patterned to show on a large scale how beef production can be increased and the stability of grasslands improved through the use of different systems of management, rates of fertilization, and depths of fertilization.

Are you planning to install or repair a

NITROGEN SOLUTION SYSTEM

You ought to know Joe

Call, Write or Wire JOE NAYLOR

V. P. at J. M. TULL METAL & SUPPLY CO., INC.

FOR 20 YEARS Joe has been on the job analyzing and correctly specifying your Nitrogen Solution Fitting requirements. He will keep you out of trouble in assembling your Nitrogen Solution equipment and insure your securing the right type and amount of material to do the job correctly.

SEND FOR BOOKLET "The Installation and Operation of a Nitrogen Solution System" to P. O. Box 4628, Atlanta 2, Georgia.

J. M. TULL METAL & SUPPLY COMPANY, INC.

285 Marietta St., N. W. JAckson 5-3871 ATLANTA 2, GA.

Branch Warehouses

JACKSONVILLE MIAMI TAMPA

CLASSIFIED ADVERTISING

For Sale, Exchange and Wanted Advertisements, same type now used, EIGHT CENTS a word for one insertion; TWELVE CENTS a word for two insertions; FIFTEEN CENTS a word for three insertions, and FOUR CENTS a word for each insertion more than three; ADVERTISEMENTS FOR THIS COLUMN MUST BE PAID IN ADVANCE.

WANTED: Position as manager or superintendent of fertilizer factory. Over twenty years experience in the manufacture of sulphuric acid (chamber type plant), superphosphate and mixed fertilizers. Have worked both union and non-union labor, both water front and inland plants, thoroughly familiar with repair and maintenance of plant; also new construction and machinery layout, etc. Can furnish excellent nationally-known references in both character and ability. Presently employed, good reason for changing. Box No. 39, c/o Commercial Fertilizer, 75 Third St. N. W., Atlanta 8, Ga.

SITUATION WANTED: Desire management position with progressive fertilizer company. B. S. Agriculture Chemistry. Age 37, family. Eight years experience in production and sales commercial fertilizer. Four years plant supervision, four years manager of plant of 50,000 annual tons. Salary must compensate for experience. Box No. 41, c/o Commercial Fertilizer, 75 Third St. N.W., Atlanta 8, Georgia.

SALES MANAGER: Long established midwestern fertilizer plant. Write giving age, references, experience and salary desired. Box No. 38, c/o Commercial Fertilizer, 75 Third St. N. W., Atlanta 8, Ga.

FERTILIZER EXECUTIVE: 10 years experience in fertilizer, purchasing, sales and manufacture. Last 5 years over-all direction of division. Degree in accounting. Age 41. Box No. 37, c/o Commercial Fertilizer, 75 Third St. N. W., Atlanta 8, Ga.

FOR SALE: Rotary Dryers 5' x 30', 5' x 40', 4'6" x 50', 5' x 67', 6' x 60', 9' x 80'. (1) Pressure Tank 13,000 gal. 220#. Also Mixers, Storage Tanks, Screens, Elevators. Send us your inquiries. Brill Equipment Company, 2402 Third Ave., New York 51, N. Y.

FOR SALE: (3) Sprout Waldron Ribbon Mixers, 336 cu. ft. (12,000 lb.) working capacity. Rotary dryers, 3'6" x 25'; 4'6" x 32'; 4'6" x 40'; 5'6" x 42'; 6' x 50'; 104" x 70'. (70) Welded steel storage tanks from 4300 to 23,000 gal. sizes. Also Hammer Mills, Pulverizers, Bucket Elevators, Conveyors, etc. Perry Equipment Corp., 1426 N. 6th St., Philadelphia 22, Pa.

BONDED EQUIPMENT BARGAINS! New Conveyor Belting; 4-ply, 28-oz. duck, ⅛" x 1/32" rubber covers. 18", **$3.19** foot; 20", **$3.69** foot; 24", **$4.14** foot; 30", **$5.06** foot; 36", **$6.00** foot. Other widths and plies available at bargain prices. 5" roll diameter Troughing Idlers and Return Rolls from **$7.25.** Vibrating Screens, sizes 2' x 4' to 5' x 14'; 1 to 5 decks, from **$443.00.** Crushers from **$527.00.** Feeders from **$255.00.** All types of Belt Conveyors and Bucket Elevators. Write for Free Literature and Prices of equipment interested in, and Bargain List. Bonded Scale Company, 111 Kingston, Columbus, Ohio, Phones: HI 4-2186 Days; AX 1-2213 Evenings.

WANTED: Good used 14x7 bucket elevator, hammer mill, sewing or bagging conveyor, and continuous feeders. Please state condition, location and price. Box No. 40, Commercial Fertilizer, 75-3rd St., Atlanta, Ga.

FOR SALE or rent Fertilizer plant complete with granulation equipment sell on terms. Plant located in Iowa. Box 1251, Sioux City, Iowa.

FAST SERVICE
on
BAG CLOSING MACHINES

Class 80000

Service also on Class 60000 D and Class 14500.

R. SAM WILLIAMS & SON Winder, Ga.

"Known Throughout the Industry for Exceptional Bag Closing Service."

SHUEY & COMPANY, INC.

Specialty: Analysis of Fertilizer Materials and Phosphate Rock. Official Chemists for Florida Hard Rock Phosphate Export Association. Official Weigher and Sampler for the National Cottonseed Products Association at Savannah; also Official Chemist for National Cottonseed Products Association.

115 E. Bay Street, Savannah, Ga.

Wiley & Company, Inc.

Analytical and Consulting Chemists

Calvert & Read Streets

BALTIMORE 2, MD.

LAW & COMPANY

Founded 1903

FERTILIZER CHEMISTS

Three Convenient Laboratories

P. O. Box 1558 Atlanta 1, Ga. | **P. O. Box 789** Montgomery, Ala. | **P. O. Box 629** Wilmington, N. C.

Cut Production Costs—

Speed up your plant with

ATLANTA UTILITY
FERTILIZER MACHINERY

Fertilizer Mixing Systems
Revolving Screens
Mixing Plows
Clod Breakers
Elevators
Fertilizer Shakers
Cage Mills
Batch Mixers

Write Today for Descriptive Folder

ATLANTA UTILITY WORKS
EAST POINT, GA.

SOUTHERN STATES PHOSPHATE and FERTILIZER CO.
SAVANNAH, GEORGIA

Manufacturers of SULPHURIC ACID, SUPERPHOSPHATE, COMPLETE FERTILIZERS and ALL TYPES OF BASE GOODS

EXPORT ORDERS SOLICITED

Arrives on Schedule

FUR-AG®

the sterilized organic conditioner

For years . . . First Choice of Leading Fertilizer Manufacturers

Fur-Ag is readily available . . . inexpensive, produced in volume, shipped to you on schedule 12 months a year. Among Fur-Ag's many advantages: reduces bag set, speeds up curing in the pile, provides bulk, sterilized—free from plant diseases, insects and weed seeds. Fur-Ag's dark, *natural color* helps make a rich-looking product. Write today for Bulletin 127.

The Quaker Oats Company

CHEMICALS DEPARTMENT

345 The Merchandise Mart, Chicago 54, Illinois

Alex. M. McIver & Son

BROKERS

Specializing

SULPHURIC ACID

Ground Cotton Bur Ash, 38/42% K_2O Potash.

Nitrogenous Materials

Castor Pomance

Urea, 45½% and 46% Nitrogen

DI-N-CAL—20.5% Nitrogen
(Calcium Ammonium Nitrate)

Representatives

Morgan Brothers Bag Company, Inc.

Bags—Paper and Textile

Ammoniated Base and Superphosphate

Dolomitic Lime
(42-44% Magnesium Carbonate)
(54-56% Calcium Carbonate)

POTASH

PEOPLES OFFICE BUILDING
Charleston South Carolina
Phones: 3-4828 and 3-4829

INDEX TO ADVERTISERS

Allied Chemical & Dye Corp., Nitrogen Div. ..... Front Cover
American Agricultural Chemical Company, The
American Limestone Co.
American Potash & Chemical Corporation
Arkell and Smiths 42
Armour Fertilizer Works 47
Ashcraft-Wilkinson Co. 14, 50
Atkins Kroll & Company
Atlanta Utility Works 67

B. I. F. Industries, Omega Machine Company 19
Bagpak Division, International Paper Co.
Bemis Bro. Bag Co. 11
Berkshire Chemicals, Inc. 64
Blaw-Knox Company, Blaw-Knox Equipment Division
Blue Valley Equip. Mfg. & Engr. Co.
Bradley & Baker 52
Burlap Council of Indian Jute Mills Assn. 36

Chase Bag Company
Chemical Construction Corporation
Chicago Fertilizer Co. 62
Climax Molybdenum Company
Cole Manufacturing Co., R. D. 64
Commercial Solvents Corporation

Davidson-Kennedy Co. 45
Davison Chemical Co. Div. W. R. Grace & Co.
Dow Chemical Company, The
Du Pont De Nemours & Co. (Inc.), E. I. 12
Duval Sulphur and Potash Co. 50

Evans Metal Company 62

Fertilizer Equipment Sales Corp. 64
Fulton Bag & Cotton Mills

General American Transportation Corporation 16
Grace Chemical Company Div. W. R. Grace & Co. 29

Hammond Bag & Paper Co., Inc., Div.
Hudson Pulp & Paper Corp.

International Minerals & Chemical & Corporation
Phosphate Chemicals Division 6, 7
Phosphate Minerals Division
Potash Division
International Paper Company

Johnson Company, C. S.

Kent Bag Company, Inc., Percy 61
Koppers Company, Inc. (Tar Products Div.)
Kraft Bag Corporation ..... Inside Front Cover

Lancaster, Allwine & Rommel 64
Law & Company
Link-Belt Company 25
Lion Oil Company, A Division of Monsanto Chemical Co. 10
Lummus Company, The 30

Marietta Concrete Corporation, The 63
McDermott Bros., Co.
McIver & Son, Alex. M. 62, 68
Moores Lime Co., The 47

National Lime and Stone Co., The 62
National Potash Company 35
Nitrogen Division
(Allied Chemical & Dye Corp.) ..... Front Cover

Omega Machine Company, B. I. F. Industries 19

Phelps Dodge Refining Corp. 64
Phillips Chemical Company 18
Potash Company of America ..... Inside Back Cover

Quaker Oats Company, The (Chemicals Dept.) 68

Raymond Bag Corporation 15
Refined Products Corporation 20
Renneburg & Sons Co., Edw.

Sackett and Sons Co., The A. J. 32, 33
St. Regis Paper Company, Multiwall Bag Division 8, 9
Shuey & Chemical, Inc. 67
Simplicity Engineering Company
Sinclair Chemicals, Inc.
Smith-Rowland Company 3
Southern Lead Co. 64
Sohio Chemical Co. 43
Southern States Phosphate and Fertilizer Co. 67
Southwest Potash Corp. 46
Spencer Chemical Company
Stedman Foundry & Machine Company, Inc. 61
Stephens-Adamson Manufacturing Co.
Sturtevant Mill Company 17

Tennessee Corporation 59
Texas Gulf Sulphur Co.
Tull Metal & Supply Co., Inc., J. M. 66

Union Bag-Camp Paper Corp. 13, 55
Union Special Machine Co. ..... Back Cover
U. S. Industrial Chemicals Co., Chemical Div.
U. S. Phosphoric Products Division, Tennessee Corp. 52
United States Potash Company,
Div. United States Borax & Chemical Corp. 39

Weatherly Company, The D. M. 4
Wiley & Company, Inc. 67
Willingham-Little Stone Company 57
Williams & Son, R. Sam 67
Woodward & Dickerson, Inc.

A NEW GIANT SERVANT OF AGRICULTURE

Our NEW STANDARD GRADE MURIATE is winning wide approval and acceptance.

Place your orders for early delivery with P. C. A. Your production and operating people will be glad you did.

P.C.A.
The SALT of the EARTH
RED MURIATE

POTASH COMPANY OF AMERICA

CARLSBAD, NEW MEXICO.

General Sales Office . . . 1625 Eye Street, N.W., Washington, D.C.
Midwestern Sales Office . . . First National Bank Bldg., Peoria, Ill.
Southern Sales Office . . . Candler Building, Atlanta, Ga.

Engineered

to meet modern PRODUCTION REQUIREMENTS

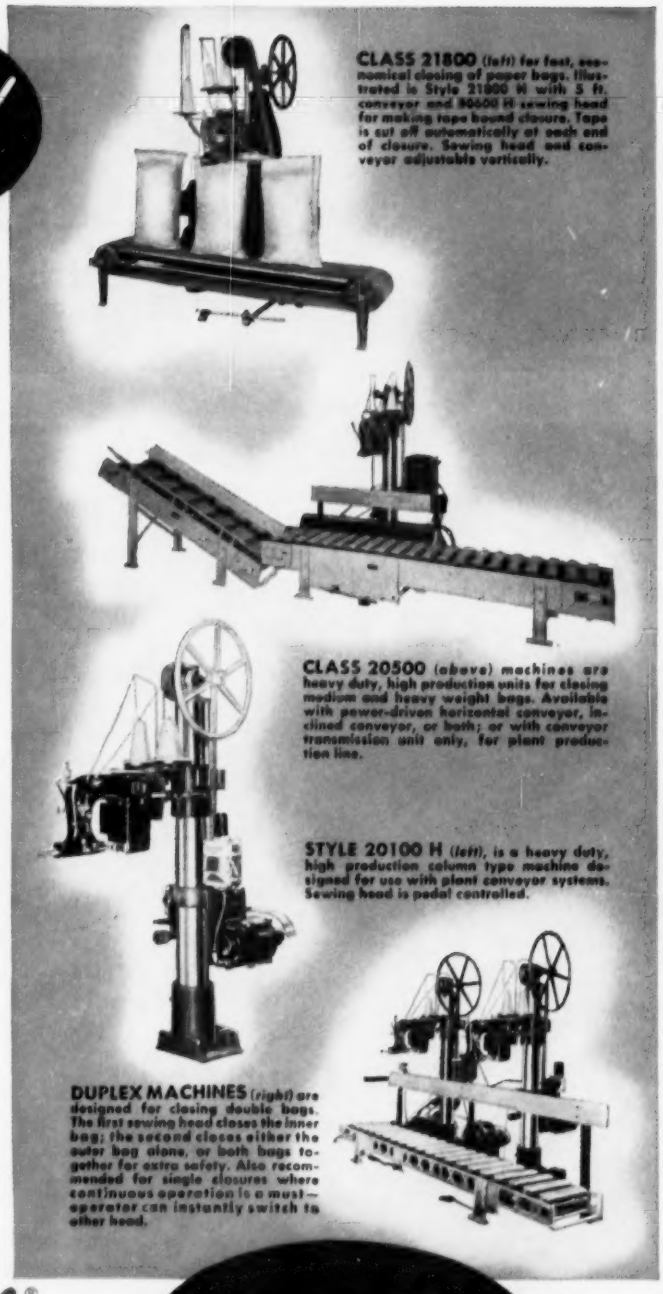
NO two jobs are exactly alike — that's why Union Special builds a wide variety of bag closing equipment. In the Union Special line you will find machines for closing all sizes and kinds of bags from small textile or paper bags of one pound, or less, up to the largest multiwall paper bags in use today. Whether your production schedule calls for closing just a few bags or for high continuous output, Union Special can supply the equipment to do the work efficiently, economically, dependably!

Coupled with a complete line of equipment is Union Special's vast background of experience and technical know-how that insures customers of getting THE RIGHT MACHINE FOR THE JOB!

Union Special representatives located in all leading industrial centers are qualified by experience and training to give you expert recommendations. Take advantage of the service they offer.

Ask for recommendations. UNION SPECIAL MACHINE CO., 412 North Franklin St., Chicago 10, Illinois.

Send for Bulletin 200



CLASS 21800 *(left)* **for fast, economical closing of paper bags. Illustrated is Style 21800 H with 5 ft. conveyor and 80600 H sewing head for making tape bound closure. Tape is cut off automatically at each end of closure. Sewing head and conveyor adjustable vertically.**

CLASS 20500 *(above)* **machines are heavy duty, high production units for closing medium and heavy weight bags. Available with power-driven horizontal conveyor, inclined conveyor, or both; or with conveyor transmission unit only, for plant production line.**

STYLE 20100 H *(left)*, **is a heavy duty, high production column type machine designed for use with plant conveyor systems. Sewing head is pedal controlled.**

DUPLEX MACHINES *(right)* **are designed for closing double bags. The first sewing head closes the inner bag; the second closes either the outer bag alone, or both bags together for extra safety. Also recommended for single closures where continuous operation is a must—operator can instantly switch to other head.**

Union Special®

BAG CLOSING MACHINES